



THIS MONTH'S COVER: If one wheel stops, all are affected. Wheels are not just a matter of transportation. They symbolize modern business.

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DISTRIBUTION AGE

FORMERLY

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BASIC POLICY

EVERY business is engaged in and affected by distribution. All firms, industrial and mercantile, are shippers as well as receivers; all use transportation; all are confronted with handling and packing problems; all are concerned to some extent with the proper storage of raw materials or finished products; all have to deal with vexing financial and marketing questions; all need insurance; all have to consider service and maintenance of one kind or another. These are all phases of distribution, which begins before production with the movement of raw materials, and continues after production until a finished product reaches its ultimate destination, the final user or consumer.

DISTRIBUTION AGE believes that costs can be cut by better integration of all phases of distribution; that a part of the resultant savings should be passed on to consumers to increase buying power; that by intelligent simplification and standardization of methods and practices distribution can be made more efficient and profitable in all branches of commerce and industry. The policy of this publication is to assist business management in the attainment of those objectives.

This advertisement is one of a series now appearing in national magazines and newspapers as Consolidated Vultee's contribution toward a clearer public understanding of how and why America must retain its present-day Air Supremacy.

...by the Skin of our Teeth

SEVERAL TIMES during the European phase of this war, victory was almost within Germany's grasp . . . on land, on the sea, or in the air.

Above all, knowing the vital importance of air supremacy, the Nazis tried time and again to wrest it back from the Allies.

And they almost succeeded.



Time ran out

Especially in the last months of the war, our margin of safety was slimmer than most of us suspected.

Just how slim it was is known best to certain American military experts who have since inspected some of Germany's underground research laboratories and war plants.

Here they saw secret weapons in various stages of development . . . weapons which might conceivably have turned the trick for the Nazis if they could have used them boldly in a last desperate gamble.

Some of these things can now be revealed. Others cannot—yet.

In one plant, the U. S. Army officers found partially assembled jet fighter planes of radical new design. There were planes potentially better than anything the Allies had in

combat at that time.

If time hadn't run out on the Germans, quantities of these jet planes might have changed the balance of air power in their favor.

In a V rocket plant, burrowed 800 feet deep in limestone rock, our technicians found blueprints for a fearful V bomb with an estimated range of 3000 miles.

"We planned to destroy New York and other American cities starting in November," said a German rocket engineer.



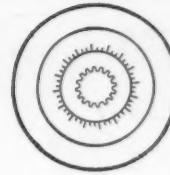
Target: U.S.A.

In a converted salt mine, our ordnance officers examined nearly completed jet-propelled heavy bombers . . . bombers claimed by the Germans to be capable of crashing high explosives into the industrial cities of the eastern United States and flying back again across the Atlantic.

Goering himself said the planes had been successfully test-flown and would have been in operation if Germany could have held out 3 months longer.

But those catastrophes, and others, never quite came to pass on the German timetable of war. We managed, right to

EDITORIAL



Distribution and Traffic

DISTRIBUTION costs are affected by traffic management in many ways. Competent traffic management curtails costs. Practical evidence of this may be found in several articles in this issue.

The position of an industrial traffic manager is one of great responsibility. Also, it is one that entails many "headaches." Too few industrial executives know how to use a traffic department to advantage.

They fail to realize that all phases of distribution are affected by traffic management; transportation and handling could not function without it; packing and packaging methods are reflected in transportation and handling costs; the traffic department can help keep down insurance rates; it cooperates with the finance department by auditing transportation bills, negotiating credit agreements with carriers and handling claims; part of its function is to arrange for intelligent warehousing of raw materials and finished products; it aids marketing by expediting shipments, obtaining transit privileges, mapping new sales territories and advising on branch locations; it makes efficient service and maintenance possible by synchronizing needs and shipments.

Lack of understanding by business men of these facts and their implications leads to wasted energy, wasted time and wasted money.

Many business people in addition to traffic managers would like to see this corrected. A number of traffic men believe they could do more in this connection if they were to increase their influence by attaining professional status through legislation. Others are opposed to professionalization by statute for sundry reasons, notably, because of differences of opinion respecting standards to be set up, and because of the practical difficulties of having uniform standards, if established, accepted by 48 state legislatures.

As in so many matters where principles and methods are subjects of debate, the human factor usually is the determining one. Opinions differ, not merely because needs vary, but also because of fundamental differences in men's temperaments, tastes and talents.

Even if the current incipient movement to attain professionalization falls short of its goal, it should accomplish much toward raising standards and toward informing industrial executives and the general public about the value of competent traffic management.

Indeed, we venture to suggest, whether the proposed campaign for professionalization is pressed or dropped, that a well-planned, persistent, threefold educational program could accomplish a great deal both for traffic

managers as a group and for industry as a whole. It is badly needed.

First, it is needed within the ranks of traffic management itself. Many industrial executives feel that a good deal of traffic work is unnecessarily involved and complicated, and that simplification of rates and tariffs, for example, would aid materially in reducing distribution costs. A comprehensive effort to achieve simplification and standardization of present rates and procedures, if undertaken by a committee of the National Industrial Traffic League, for instance, in collaboration with appropriate committees representing air, highway, rail and water carriers, should be constructive and beneficial for every group concerned, and particularly for traffic men, if they initiate it. Of course, there are difficulties, problems and obstacles. There always have been and there always will be. When are they likely to be less?

Secondly, educational work is needed to inform busy industrial executives how and why a well-run traffic department can coordinate and facilitate the work of other departments from the time raw materials begin to move until a finished product is delivered to the final user or consumer. There is a great deal of missionary work needed in this direction.

Thirdly, legislators and the general public have little or no conception of what traffic management does or can do to make distribution more efficient and economical. Unless traffic managers collectively undertake an educational program to inform the public of the facts, how can legislators or people generally be expected to have any interest in traffic management, even though it does help to provide more things for more people?

However, let us not delude ourselves by an evasion of realities. A traffic manager, irrespective of his professional status, if he has the ability and opportunity, can always increase his industrial stature and importance by helping to make his company's distribution in all of its phases more efficient and economical. In so doing, he acts in the interest of his principles, contributes materially to the public welfare, and makes himself as nearly indispensable as any man can.

Charles J. Jones
EDITOR

DISTRIBUTION DIGEST

. . . personalities, problems, products and possibilities

NEW MATERIALS HANDLING EQUIPMENT...There is a new hydraulic high-lift truck on the market with a capacity of 2000 lb. and an elevating range of from six to 60 in. Address Lyon-Raymond Corp., Greene, N. Y.

• Firms moving heavy objects, machines, tanks, boxes, steel blocks, dies, furnaces, etc., should investigate the new "Skid-Rol" dollies. Address Tachtmann Industries, Inc., 828 N. Broadway, Milwaukee 2, Wis.

• A new barrel lift designed to raise, transport and rotate loaded drums and which is capable of tilting to dispense contents is the Falstrom "Barrel-Lift." Address Falstrom Co., Passaic, N. J.

• Users, manufacturers and designers of materials handling equipment should be interested in looking through a new 6-page folder giving mechanical specifications of General industrial pneumatic tire, tube and wheel units suitable for use with various types of equipment. Concerns interested in changing over present equipment in designing new equipment or in buying pneumatic equipped hand trucks should contact The General Tire & Rubber Co., Industrial Div., Akron, Ohio.

• Some of the new "Power-Flex" power driven conveying equipment is described by its maker as "almost as flexible in its use and adaption as is the human body." Address Island Equipment Corp., 101 Park Ave., New York 17.

DISTRIBUTION COSTS...Intensive market exploitation must replace wartime allocation of goods, President Truman told the 17th Boston Conference on Distribution last month. He recommended a critical reexamination of distribution costs and services in order to reach and sell consumers at the lowest possible cost.

UNIFIED CONTROL...Warehousing control and traffic management must be closely coordinated for most efficient and economical distribution...Another large business to recognize this fact is the H. J. Heinz Co., Pittsburgh, which recently placed its warehousing division under the control of its general traffic manager, R. E. Jones.

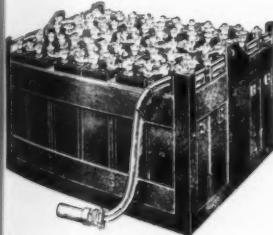
IT'S IN THIS ISSUE...The National-American Wholesale Grocers' Assn. in a recent news circular invited attention to the article "Integrating and Coordinating Transportation in Business," by C. A. Pascarella, general traffic manager, Francis H. Leggett & Co., the first installment of which appears on p. 37.

SPEEDS DELIVERIES...Faster deliveries throughout the Illinois Central System's 14 Mississippi Valley states through extensive adjustment of principal freight train schedules is announced by Oscar L. Grisamore, freight traffic manager.

MIDWEST EXPORT TRAFFIC...An increased flow of midwest export traffic through the port of New York is expected to result from the opening of a Chicago office by the Port of New York Authority. The function of the port authority which was jointly created in 1921 by the states of New York and New Jersey is to simplify and unify port handling of traffic. Action, we are told by Howard S. Cullman, chairman of the port authority, is being taken to meet revolutionary changes in transportation methods and to regain commerce diverted to competitive ports during the war. A reduction in burdensome terminal and transport costs is also planned.

TAKING THE LONG WAY HOME...Better customer servicing is a determining factor in distribution costs. The more expensive delivery system, if it means greater customer satisfaction and more sales, is the more economical in the end, G. D. Cederholm, manager, traffic and warehousing, E. R. Squibb & Sons, states in an unusual article on p. 37.

BATTERY TRUCKS for Efficient Use of Power



...ALKALINE BATTERIES

for Dependable Supply of Power

The handling operations necessary to keep work moving continuously through production are essentially stop-and-go-jobs which a battery industrial truck performs efficiently because it gets the necessary surges of power instantly from its battery, yet consumes no power during stops. Thus not only does it give high efficiency in the use of power, but the power it uses for battery charging is the lowest-cost power available.

Its electric-motor drives operate quietly, without vibration, and with almost negligible repair requirements. With batteries exchanged two or three times per 24-hour day, the truck is continuously supplied with power. One battery is charged while another operates the truck.

For continuous, 24-hour-a-day material-handling work, therefore, a battery industrial truck is an inherently economical and dependable machine...especially when powered by Edison Alkaline Batteries. With steel cell construction, a solution that is a preservative of steel and a fool-proof electrochemical principle of operation, they are the most durable, longest-lived and most trouble-free of all batteries. Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, N. J. In Canada: International Equipment Company, Limited, Montreal and Toronto.

Edison
ALKALINE BATTERIES

The Industrial Traffic

By HENRY G. ELWELL

Traffic Consultant



THE postwar period is here. Industry must contend with new and difficult problems, not the least of which is the problem of distribution. In fact, distribution is the chief one when it is considered that it starts with the movement of raw materials and that it continues until a finished product is in the possession of the final consumer or user.

Interwoven as an integral part of distribution is transportation. Without it there can be no distribution. The transportation or movement of materials and products creates costs. Where costs are concerned comparisons are in order. Cost comparisons call for skillful and specialized supervision. Because of this, we have the industrial traffic manager who is charged with the duty of directing traffic.

Executive Ability

What is traffic and what is a traffic manager? The word traffic comes from the Latin *trans* (across) and *vicis* (change). In the Spanish language *trafago*, traffic, also denotes "careful management of affairs." Our dictionary defines traffic as "an interchange of goods, merchandise, or property of any kind, between countries, communities, or individuals." A traffic manager is defined as "the manager or superintendent of traffic." The word "traffic" in the sense of interchange of property is also listed with such terms as barter,

In this article attention is directed to the fact that a traffic manager should be familiar with receiving and shipping procedure, yet, strange as it may seem, some traffic managers take the attitude that they are "too big" to be bothered with matters directly pertaining to receiving and shipping departments, and that the two sub-divisions should not be under their jurisdiction. To other traffic managers, and to us, this attitude seems anomalous, to put it mildly. The Editor.

trade, commerce, buying and selling, and business.

From these definitions it is obvious that to fill the position of traffic manager in an industrial firm a person requires knowledge and experience applicable to this special type of endeavor, and, in addition, he has to have executive ability. How else could he compare, and carefully manage the movement of goods which are to be distributed?

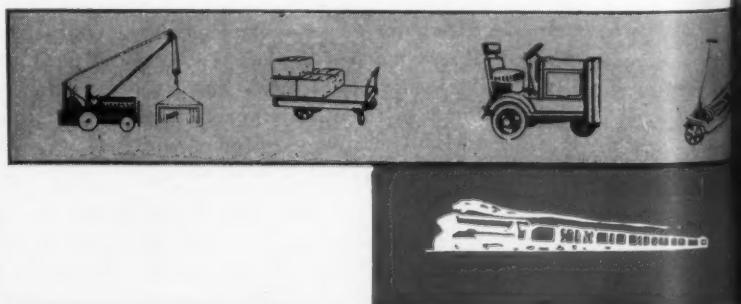
We are dealing here with the industrial traffic manager rather than with the transportation company traffic manager. Expanding our explanations, it may be stated

that for an industrial firm the traffic manager should direct or supervise the movement of all material supplies, and products used or made by the company; cooperate with carriers of every type for the best rates, routes, and services; assist in working out the most practical methods in intraplant movement; cooperate with each division and subdivision of the organization, and manage his own department economically and efficiently.

Transportation Buyer

By and large, the traffic manager may be described as the person who buys transportation for his company. He must be loyal to the interests he serves; of good character; tolerant of the opinion of others, but firm in all of his dealings. Without these qualities his knowledge, experience, and ability, in the long run, would be of slight worth to those employing him.

The days when a traffic manager obtained special privileges for his



Manager

The traffic manager is a transportation specialist in the field of distribution. It is on this basis that a concern should select the person it engages to direct its traffic affairs. As it employs specialists to manage its accounting, its production, its purchasing and its sales promotion efforts, by the same token it should select a specialist as its traffic manager. He must be "fit, willing and able" to assist in meeting the distribution problems which have to be mastered.

company are past. The Interstate Commerce Act eliminated such practice. Furthermore, the "glorified shipping clerk" sort of traffic manager is rapidly passing out of the picture.

Strict Ethics

Today, the industrial traffic manager has almost attained to what may be termed a profession. Actually, his work is definitely specialized and based on strict ethics. Not only must the traffic manager know how to handle receiving and shipping functions, quote and compare rates and routes, trace and expedite shipments, he must be able to direct the operations pertaining to these matters. Not only must he be interested in the usual transportation affairs relating to his company, he also is required to take an interest in materials handling because the latter is a part of transportation in its broadest meaning. Further, the traffic manager must be interested in packaging, packing methods, and contain-

ers. He has to know something about marine and transportation insurance, and import and export procedure. It is not necessary that he be an expert in regard to materials handling equipment, or packaging, or insurance, or import and export work, but he must know where to get specialists in these fields with whom he can cooperate. Added to all these the traffic manager should be qualified to practice before the Interstate Commerce Commission, and other regulatory bodies.

The traffic manager is a transportation specialist in the field of distribution. It is on this basis that a concern should select the person it engages to direct its traffic affairs. As it employs specialists to manage its accounting, its production, its purchasing, and its sales promotion efforts, by the same token it should select a specialist as its traffic manager. He must be "fit, willing, and able" to assist in meeting the distribution problems which have to be mastered.

With decisive changes likely,

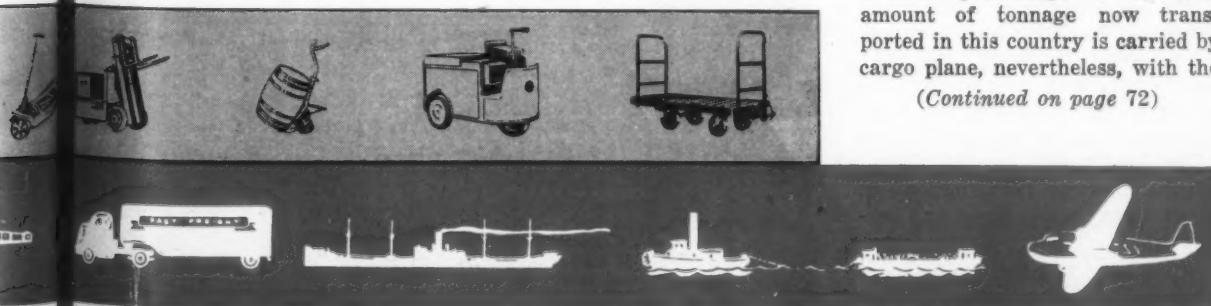
production and distribution questions will place heavier responsibilities upon industrial traffic managers. Many developments are moving in a direction which will bring about extensive adjustments in his work.

We are confronted with major problems in economics. There are many tangled skeins which executive management is not equipped to unravel without the help of specialists. Traffic and transportation are entwined with all distribution problems and require the assistance of the trained industrial traffic manager. This means he must be ready to "sit at the table" with management, economists, production engineers, etc. The industrial traffic manager must be able to handle the task.

Air Cargo Development

As an example of the forces which are bound to affect the industrial traffic manager consider the airplane. The use of this medium of transportation for moving freight is increasing. While only a small percentage of the total amount of tonnage now transported in this country is carried by cargo plane, nevertheless, with the

(Continued on page 72)



Projecting Branch Operations

Feasibility of a contemplated branch development is determined through coordinated studies by traffic, sales and top management affecting sales potentialities in relation to freight rates, warehousing, handling, tax and other costs.

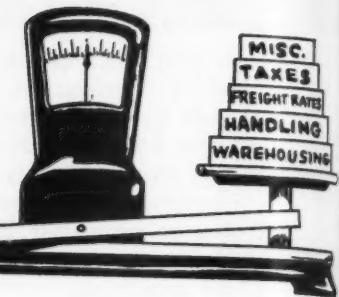
WITH the realization that national prosperity in the period immediately ahead is largely a problem in distribution has come recognition of the importance of traffic management's role in the overall picture. Distribution, as repeatedly defined in this publication, is concerned with the movement of raw materials and finished products from point of origin to point of ultimate use or consumption, and in all of the steps required therefore, i.e., handling and transportation, packing and packaging, finance and insurance, warehousing and marketing, service and maintenance. Traffic management can and often does serve as an integrating and coordinating factor.

Market Areas

It is not my intention, however, to discuss in this article the overall functions of traffic management but to limit myself to a discussion from a purely practical standpoint of a single but very important function, namely, coordination between traffic, sales and top management in projecting branch operation and in the economical and efficient service distribution of products to market areas and customers.

Speaking broadly, there are three primary factors which deter-

mine the feasibility of a projected distribution center. First, shipping and warehousing costs. These cover shipping into the warehouse plus less than carload or less than truckload lots from the warehouse to the customer. Secondly, warehousing costs. These include storage and handling charges together with servicing charges such as billings, collections, packing, etc. Thirdly, taxes. Taxes, in the form of state personal property taxes, county and state taxes, income taxes, etc., are of considerable importance in determining the desirability of operating as a foreign or domestic corporation in the state



By G. D. CEDERHOLM

Manager, Traffic and Warehousing
E. R. Squibb & Sons
New York, N. Y.

where the projected distribution center is to be located.

In distribution planning, it is essential that the problems and objectives both of traffic and sales management be developed through separate studies which are then harmonized to the best interests of the distributor. In the undertaking of such studies, top management must decide:

First, is the objective, primarily or solely, getting products into the hands of customers at the least possible cost?

Secondly, is the objective better customer servicing at the lowest cost consistent with this aim?

In the first case, the sum total of shipping costs in and out of the warehouse (freight rates), storage and handling costs (warehousing) and tax costs (state personal property or franchise) must be compared with the direct shipping cost from the source of supply to the customer. The method representing the greatest saving is the one used.

Adequate Stocks

In the second case, slightly higher physical distribution costs may be offset by the presence in a market area of adequate stocks which because of increased customer

(Continued on page 56)



Mr. Cederholm is not only an authority on problems of traffic management but on those of law as well. He is instructor in freight traffic management and interstate commerce law at the Traffic Managers' Institute and chairman of the executive committee of the Drug and Toilet Preparation Traffic Conference. He was admitted to practice before the Interstate Commerce Commission and before the courts of New York State in 1938.

Knowledge and Standards in Traffic Management

By JOHN B. KEELER

President
National Industrial Traffic League



HE National Industrial Traffic League is devoutly interested in advancement of the standards of traffic management. The value of the industrial traffic manager to his company is dependent on his traffic knowledge and the intelligent and practical application of that knowledge to the problems of his employer.

Adequate traffic knowledge today embraces a broader field than ever before. Knowledge of how to read tariffs and ascertain correct rates thereunder, although highly important, is only the beginning. The thoroughly prepared traffic manager must have a working knowledge of transportation law, including that pertaining to governmental regulation and liability

of carriers. He must have a knowledge of the rate structures of the country and of the many governmental rules and regulations pertaining to transportation and keep abreast of changes therein.

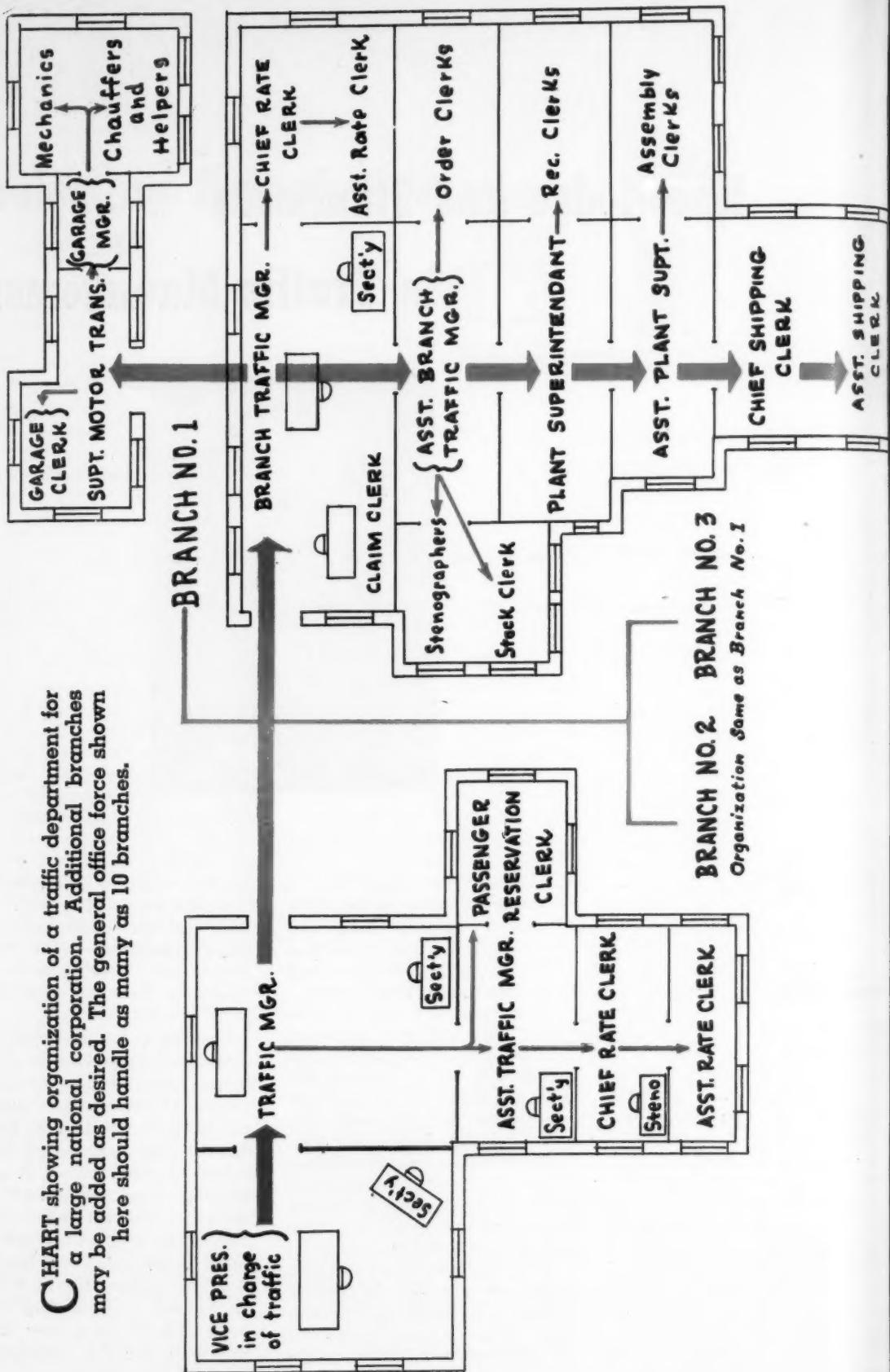
Liberal general education is becoming more and more important to those who would achieve the highest standards of traffic management. Knowledge of economics and finance are material aids. Sound judgment is all important.

Although the League does not prepare courses of study or conduct classes in traffic management, as the national organization of the industrial traffic manager, it keeps its members currently advised with regard to actual and proposed changes in regulatory law, governmental decisions, rules, regulations and policies, and the rules, regulations and practices of general ap-

plication proposed by carriers. It is a form for the discussion of all these matters, the formulation of sound conclusions with regard thereto and action thereon. Its functions, therefore, are educational to a high degree.

The League has a Committee on Traffic and Transportation Education. Transportation problems created by the war have engaged the full-time attention of the industrial traffic manager to the exclusion of other matters of a less pressing nature. Consequently, our committee has not been able to function as freely as it would have under normal conditions. However, it is now aggressively at work in the interest of promoting educational phases with a view to elevating further the standards of traffic management.

CHART showing organization of a traffic department for a large national corporation. Additional branches may be added as desired. The general office force shown here should handle as many as 10 branches.



A Modern Traffic Department

Part 1 - The General Office

By W. B. JESTER

A modern industrial traffic department is a complex organization which requires the direction of highly trained executives. The hub of the department is the traffic manager, who is one of the busiest men in the entire company.

THIS article outlines the organization of the traffic department of a national corporation doing a business of approximately \$100,000,000 annually, and maintaining manufacturing branches throughout the United States. It also discusses the duties of the various officials in the department.

Vice President in Charge of Traffic. Many large corporations recognize the value of the traffic department, and place this department under the jurisdiction of a vice president in charge of traffic. Included in the traffic department, as well as the handling of commercial traffic, is the supervision of all warehouses and rolling equipment operated by the company. It does not include the production department.

One of the most important duties of the vice president in charge of traffic is locating branch plants. In locating such plants, there are three primary factors to be considered:

1. Accessibility to raw materials.

2. Proximity to consumer markets.

3. Transportation facilities.

A branch plant should never be located at a point where only one railroad is available. Competition is valuable. Commitments should never be made to any railroad which would require the firm to ship any amount of traffic over that road. Care should be taken

Editor's Note: This is the first of a series of three articles on traffic management by W. B. Jester. The second article will discuss the branch plant traffic organization, and the third will deal with the supervision of company-owned vehicles.

Mr. Jester has had many years of practical experience in the field of traffic management. He was general traffic manager for The D. Pender Grocery Co. (now Colonial Stores) Norfolk, Va., for 20 years and for six years was executive secretary and traffic manager of the Virginia-Carolina Peanut Assn., and the National Peanut Council, with general offices at Atlanta, Ga. He is at present branch traffic manager at Dallas, Tex., for a nationally known beverage manufacturer.

to see that reciprocal switching arrangements between all railroads apply to the site of the plant. The securing of favorable rates on raw materials from point of origin to the plant is an important function of this official.

Another important duty of the executive head of the traffic department is maintenance of efficient and friendly relations with the head of the production department, and with other department heads. He should also maintain friendly personal relations with railroad executives. Many an important freight rate is agreed to on the golf course, although it may not be published until months later.

A most important function of the executive in charge of traffic is the building of morale among

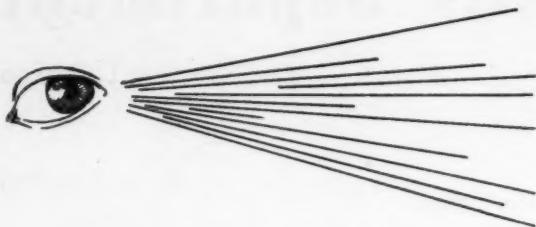
the employees of his department. Some companies make use of a personnel director, whose duty it is to employ all personnel, but this practice has not been found satisfactory in many cases, and is not recommended. Experience has shown it to be a better policy for section heads to employ their own personnel, under the general supervision of the executive in charge of the department.

The vice president in charge of traffic should be a practitioner before the Interstate Commerce Commission, and should be familiar with commercial law, but it should not be necessary for him actually to handle cases before the Commission. This is a duty of the traffic manager.

Traffic Manager. The traffic manager should be about the busiest man in the organization. A large part of his time should be taken up in handling cases before various rate-making bodies. The question as to how many cases are taken to the ICC is one of policy, which should be answered by the vice president in charge of traffic. In national cases, such as the Class Rate Investigation, and the Consolidated Freight Classification Case, (Docket No. 28300 and No. 28310) every national traffic organization should participate in order to protect its commodities and to give the Commission the benefit of its views. On the other hand, it is poor policy to run to

(Continued on page 82)

A Traffic Man Looks to the Future



Ideal distribution does not necessarily require expeditious movement of materials. It requires that raw materials be processed or manufactured into satisfactory products and delivered to the ultimate user or consumer in the shortest possible time consistent with efficient and economical handling.

By JOHN MATHEWS

Traffic Manager
ANSCO, Binghamton, N. Y.



DISTRIBUTION improvement will mushroom during the coming six months as energy, both mental and physical, is released in more efficient ways. The industrial traffic manager must guide his traffic department's energies toward the ideal distribution of his company's products. Paramount in his duties is shortening the distance or, more accurately, the time between his company's sources of supply and manufacturing centers on the one hand and the ultimate consumer or user on the other.

Distribution costs will be greatly decreased. It is necessary to explore this paradox. How can goods be moved with greater speed and at less cost? A more ideal distribution is the very essence of the practical. How will practical distribution necessitate immediate changes in the organization and viewpoint of most traffic departments and will such revisions be permanent?

Wartime saw the industrial traffic manager leading his department in the distribution of goods which were at least indirectly for war purposes if not actually for the men in the front lines. For reasons that have no part in this discussion, it was necessary to decentralize production. To an extent,

as a result of this, sub-contracting became the order of the day. A finished product normally assembled in one location was moved many times during its assembling. A casting might be moved hundreds of miles to have some special hole drilled therein, then moved on to another location for spot welding and back to the principal assembly point for further processing and then off again for a several hundred-mile trip for the paint job. This often necessitated speedy and costly transportation. It was accompanied by a considerable amount of drama in some cases.

Ideal Distribution

But the rushing around with semi-processed materials to processing centers and consequent multiple moves did not create ideal distribution, that is, it did not bring the raw material to the processor or the finished product to the ultimate consumer or user with economy and dispatch. It is fallacious to conclude that this speedy movement of materials resulted in the prompt distribution of goods which the postwar world will demand. Ideal distribution does not necessarily require expeditious movement of materials. It requires that raw materials be processed or manufactured into satisfactory prod-

ucts and delivered to the ultimate user or consumer in the shortest possible time consistent with efficient and economical handling.

Until man has evolved much beyond his present state, unfortunately, from time to time, there will be exceptions which necessitate expensive transportation and this varies depending on the industry. Through lack of planning and human failure, production planning departments will miscalculate or mis-schedule the production of certain needed items for a finished product. Purchasing departments will fail to order on time and this can result in greatly increased distribution costs accompanied by slow and inefficient distribution.

During the war, station wagons, automobiles and special trucks were dispatched hundreds of miles to pick up a package of missing screws, etc. Often armed guards accompanied the shipments. Chartered planes, often carrying much under their normal load, were rush-

(Continued on page 96)

What's Behind the Lea Questionnaire

Few believe that the full import or direction of the Lea transportation investigation has yet become apparent. About 200 replies have been received from the 18,000 questionnaires sent out. The deadline is expected to be extended, and hearings may start early next year. Many in Washington believe that common ownership and integration of all transportation facilities is the major objective on the part of those who have prompted the exploration.

By ARNOLD KRUCKMAN

Washington Correspondent

OVER 18,000 questionnaires have been distributed by the subcommittee on transportation of the House Committee on Interstate and Foreign Commerce. These have been sent to operators of transportation companies, shippers, shippers' organizations, committees, associations, chambers of commerce, and other public bodies, including federal and state regulatory commissions, plus individuals, to elicit data, opinions, and recommendations, which may bear fruit in "legislation that will result in a consistent public policy fair to all competing agencies of transport, to the using and investing public, and to labor, to the end that the country's commerce may be moved with the greatest possible degree of economy, safety, and dispatch." The quotation is from the resolution adopted by the House authorizing the sweeping investigation.

Representative Clarence F. Lea, of California, chairman of the committee on interstate and foreign commerce, says the action grew out of a suggestion made by former Representative Sidney Anderson, of Wisconsin, now secretary, General Mills, Inc., and president, Transportation Assn. of America. Mr. Anderson while in Congress, in the 20s, conducted an investi-

gation which involved the transportation problems of farmers and agricultural processors. Mr. Anderson's recent suggestion was directed more specifically to similar problems, while obviously the broader, overall implications were clear. This led to the expansion of the present investigation into a sort of dragnet into all the corners and crannies of the subject. The questionnaire patently is designed to leave no phase of the subject unexplored when the hearings are ended.

The subcommittee in charge consists of Representatives Robert Crosser, Ohio; Alfred L. Bulwinkle, N. C.; Lyle H. Boren, Okla.; J. Percy Pierce, Tenn.; Oren Harris, Ark.; George G. Sadowski, Mich.; Charles A. Wolverton, N. J.; Pehr G. Holmes, Mass.; A. Carroll Reece, Tenn.; Charles A. Halleck, Ind.; and Clarence J. Brown, Ohio. Mr. Lea is chairman.

Replies Received

Digest of the replies received began in the committee on Oct. 11. The work is under the direction of F. P. Randolph, assistant clerk of the committee, and is directly supervised by Mrs. M. A. Biddle. Approximately 200 replies have been received. Officially those in-

vited to respond were told that all answers must be filed by Nov. 15. It is expected the deadline will be extended possibly until next January. It is known hundreds, possibly thousands, wish to submit replies. The contribution of a written document does not commit the writer to an appearance before the committee.

As Mr. Lea has said: "The committee will not only welcome but invites information and constructive suggestions from students of transportation and any other persons who may be interested. Recipients are not confronted by a questionnaire. They are at liberty to comment on as much or as little as they may desire. We want their independent, voluntary suggestions."

The communications will be analyzed, summarized, and the facts, figures, and trends of opinions compiled for eventual publication in the committee's report. The hearings will begin some time early next year. The committee is authorized to require witnesses to appear by subpoena, and it may require production of books, papers, and documents at any time and place. The resolution of authorization apparently anticipates protracted existence, and that the

(Continued on page 87)

Federal Regulation of Highway Carriers



The Motor Carrier Act has been in force 10 years. Air, highway and rail competition is becoming keener. Congressional investigation of transportation is imminent. Now is the time to consider the pros and cons of federal regulation, its value and possible future development.

By HARRY S. ELKINS

Interstate Commerce Attorney

THE Motor Carrier Act administered by the Interstate Commerce Commission became a law in 1935. Ten years' experience has been had under it. Competition between motor and rail transportation has become more keen, and the airplane will seek a greater share of the buyer's transportation dollar.

The nation accumulated during the war a great number of ships and barges, and inland waterways and coastwise water-borne commerce must be considered in its relation to the overall competitive picture which will engage the attention of Congress in its investigation of transportation during this session. This then is a time for consideration of experience gained under regulation, of its trends, and of the place of competition in regulation. The field is a broad one, too broad for complete consideration in this article. Because motor transportation is closer to the average individual, it is proposed here to discuss within these narrow limits regulation of motor transportation from the viewpoint of the new operator, the existing carriers and the shipping public.

The veteran or the would-be entrepreneur should be advised that the field of transportation may be entered without the approval of the Interstate Commerce Commission. There are still open fields. Transportation which is performed entirely within a single state and is

not the continuation of an interstate haul through interchange with an interstate carrier is not subject to the ICC. Some states have adopted the interstate pattern of regulation, and others have no regulation, or practically none, such as Delaware and New Jersey. There may be no preliminary requirements, or, if any, they are a mere matter of routine.

Interstate Transport

Veterans may engage in some interstate transportation without securing either a certificate or permit. They are not required before engaging in some kinds of interstate transportation. Trucks carrying property interstate are exempt when engaged, for example, in carrying ordinary livestock, fish (including shell fish), agricultural commodities (which includes milk, but not manufactured products of such commodities) and when not used in carrying any other property or passengers for compensation. Numerous trucks are engaged in transporting such products. Truckers follow the vegetable crops north from Florida as they are ready for market, and return to Florida when the winter crops are ready. The only standards required by statute of such truckers are those which the Commission may prescribe relating to qualifications of drivers and maximum hours of service of employees, and safety of

operation and standards of equipment. They are free to compete and may make such rates as they please without regulatory control.

Another exemption permits interstate transportation free from regulation by the Commission when it is performed within municipalities or between contiguous municipalities and zones commercially a part of them, and when the transportation is not a part of continuous carriage to or from points outside of such areas. Thus, transportation between New York and Jersey City, although interstate, is not subject to interstate regulation as to rates. This exemption is important for it reflects a recognition that to a very large extent trucks do perform services which are not directly in competition with over-the-road truckers or with railroads. The services performed by trucks in such local service would seem to have little, if any, relation to the development and preservation of a "national transportation system by water, highway and rail." It seems to be admitted that regulation of such transportation should be left to local boards, if any, and that rates and charges may be kept within reasonable limits by knowledge that shippers will operate their own trucks should charges go too high.

There seems to be no popular demand for return of free competition in the motor trucking field.

(Continued on page 101)

INDUSTRIAL TRAFFIC MANAGEMENT

FUNCTIONS AT EVERY STAGE OF DISTRIBUTION TO CONTROL OVERALL COSTS

TRANSPORTATION is the industrial traffic manager's primary concern. Whether the transportation is by air, highway, rail or water, experienced traffic management is required for efficient and economical routing of shipments; for proper classification and consolidation of freight; for selection of the lowest rates; for keeping demurrage charges at a minimum; for auditing freight bills; for expediting and tracing shipments; for adjusting claims and for supervising multifarious other details occasioned by the movement of goods in commerce. Inbound and outbound freight must be synchronized for efficiency.

HANDLING is as much a part of traffic management as is transportation. Everything transported has to be handled at least twice: when loaded on a carrier and when unloaded. Usually more handlings also are needed. Handling adds to cost; cost requires control; control calls for skilled and experienced direction, which competent traffic management can supply through the application of modern mechanical handling methods. Men trained as materials handling specialists by the armed forces provide the nucleus of competent handling personnel under the jurisdiction of the traffic department.

PACKING and PACKAGING affect handling methods and transportation costs. Supervising the packing, marking, weighing and shipping of outbound freight, so as to have it properly protected against loss, breakage and pilferage, and transported at the lowest rates, is an integral part of traffic management. Advising on the design of packages for economical shipment, selection of proper shipping containers for packages, and knowledge of technical freight classifications so that freight may be transported without penalty of higher ratings are essential services rendered by traffic management.

FINANCE and INSURANCE in many ways effect and are affected by traffic management. The traffic department must audit transportation bills; prepare and file claims for overcharges, losses and damages; arrange credit agreements with carriers; control demurrage costs; prepare data for settlement of customers' claims; prepare rate cases; estimate and budget transportation costs; arrange insurance coverage of goods in transit, and collaborate with the credit and auditing departments. In several ways, an efficient traffic department can cut operating costs and keep down insurance rates.

WAREHOUSING of raw materials and finished products is a responsibility of the traffic manager. He knows that intelligent and practical warehousing is necessary for efficient and economical distribution. He knows when it is expedient to store raw materials, finished products or miscellaneous supplies in public warehouses for one or more of the following reasons: as collateral for loans; to anticipate seasonal buying; to obtain lower freight rates by making carload rather than l.c.l. shipments; to have spot stocks readily available at important market centers, and as an aid in developing new markets.

MARKETING and traffic are closely allied. Freight rates affect marketing costs to a greater extent than is generally realized. A traffic department can assist a sales department by expediting shipments and arranging for transit privileges, diversions and reconsignments; by advice on freight charges and rate changes; by assistance in preparing and collecting claims for loss, damage and overage; by help in mapping new sales territories and in selection of branch house locations; by preparing rate guides for salesmen; by arranging for differential rail and water routes, and by cooperation in other similar ways.

SERVICE and MAINTENANCE have several connotations with respect to traffic management. The traffic department can arrange periodic shipments of service parts and maintenance supplies to branches or warehouses; it can prevent congestions or shortages that interrupt production or shipments by establishing fixed schedules for incoming supplies and outgoing products; it can assist the carriers by using equipment wisely and fairly. In short, competent traffic management makes efficient service and maintenance possible in all phases of distribution, each one of which serves and maintains all of the others.

DISTRIBUTION

begins with the movement of raw materials and continues until the finished product is in the hands of the ultimate user or consumer.



Functions of

1. Selection of plant and factory sites with respect to suitable transportation services and rates.

2. Selection of most suitable warehousing facilities.

3. Consolidation of small lots of l.c.l. freight into carload shipments to strategic points for distribution as l.t.l. motor freight or express shipments.

4. Concentration of goods shipped in l.c.l. lots at strategic rate points for reshipment in carload lots.

5. Classification and rate studies applicable to raw materials and finished products with respect to rates paid by competitive industries.




of Traffic Management in Distribution



6. Adjustment of discriminatory and prejudicial rates.
7. Preparation and collection of reparation claims against carriers.
8. Preparation of rate and service cases before state and federal regulatory bodies.
9. Proceedings before classification committees in connection with rules, regulations and ratings.
10. Comparative studies of packing and shipping costs.
11. Study of comparative routings to reduce costs and improve speed and safety of goods in transit.
12. Study of methods to improve transportation, handling, warehousing and other phases of distribution.

Coordination Through Traffic Management

It is often difficult to coordinate distribution in different areas. This is possible only through coordinated effort. Traffic management can and should coordinate its activities with nine other major departments.

ACCOUNTING

Checking transportation bills.
Arranging credit agreements with carriers.
Supplying shipping data for annual corporation reports.
Preparing rate-case exhibits.
Reporting status of claims filed and settled.
Supplying data for correct settlement of customers' freight rates.

SALES

Quoting rates to potential markets.
Making competitive rate comparisons.
Arranging for transit privileges.
Arranging for mixed carload and pool car shipments.
Preventing rate discrimination.
Preparing rate guides for salesmen.
Handling freight claims for customers.
Expediting and tracing shipments.
Checking customers' freight allowance deductions.
Informing the sales department of approaching rate advances and other changes in transportation conditions.
Making transportation reservations for salesmen and customers.

LEGAL

Preparing data for rate cases.
Preparing data on loss and damage claims.
Preparing rate exhibits.
Preparing data for sidetrack installations.
Exchanging information with respect to legislative developments affecting transportation.

ADVERTISING

Quoting rates as applied to different sales territories.
Citing shipping advantages enjoyed by company with respect to methods of shipment, types of containers, etc.

Giving information relative to rate changes and other factors affecting distribution.

STORES (raw materials)

Making demurrage and car release agreements.
Arranging cartage, lightering and switching into stores.
Inspecting inbound shipments.
Handling claims for loss and damage.
Arranging for proper warehousing.

PRODUCTION

Consulting with industrial designers on new products with reference to transportation and shipping requirements.
Planning shipping methods, (knocked-down, set-up, nested, etc.)
Consulting on design of containers.
Directing intraplant transportation.

PURCHASING

Quoting rates from sources of supply.
Securing satisfactory routes and ratings.
Arranging transit privileges.
Expediting and tracing shipments.
Clearing import shipments.

STOCK (Finished Products)

Arranging for proper warehousing.
Arranging for cartage, lightering and switching out.
Making weight agreements.
Arranging for trap-car service.
Supervising packing, marking and weighing.
Supervision of shipping room operations.

EXECUTIVE

Advising on new plant and branch house locations.
Advising on all traffic agreements between management and carriers.
Advising on purchase of materials handling equipment.
Advising on purchase of transportation equipment.
Securing sidetrack installations.
Estimating transportation cost budget.
Quoting of freight rates.
Making periodical reports of traffic department accomplishments.

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The Professionalization Of Traffic Management

In last month's issue my former assistant, Mr. William J. Brewer, and I proposed certain basic standards or requirements that should be met before one could be designated a Certified Traffic Manager. In order to sense the attitude of men now in the profession, this article was pre-printed and during the latter part of August it was sent to a cross section list of traffic men in all parts of the United States along with a personal letter from the writer asking for comment on various aspects of the proposed plan and the question of professionalization in general.

The traffic men addressed were assured that their individual identities would not be revealed and were purposely asked to write a letter. Answering was not made too easy. There was no questionnaire to check, no form to fill out and no return envelope was sent along to encourage a reply. In fact, we violated all the rules for getting lots of answers. Those who responded had to make some effort, a small effort in the interest of pro-

Cross section of opinion among traffic men based on special inquiry conducted by the writer emphasizes majority favor professionalization but wide divergence of views on its attainment.

By JOHN H. FREDERICK

Professor of Transportation, The University of Texas

fessionalization if they believed in it, or against it if they felt that way. Therefore, it was thought that the number of replies received, no matter what they might say, would be somewhat indicative of general interest in the subject or a lack of such interest.

Extent of Interest

Out of 600 traffic men who received the pre-print of the proposed plan, together with the letter requesting their reactions to certain points, 109 took the trouble to sit down and write a letter. This perhaps may be considered indicative of current interest in the subject.

However, 15 of those who replied merely expressed interest but made

no comment, helpful or otherwise, and so could not be of any use in forming a cross section of opinions. But the remaining 94 letters were "hum dingers." Some of them ran to three single-space typed pages. They are summarized as to the comments asked for in Table 1.

The majority of the respondents thought the proposal fair and neither too easy for the old timers nor too hard for the youngsters. Also they thought the plan workable under proper sponsorship. By far the greater number of respondents were heartily in favor of professionalization. These included youngsters and oldsters judging from their comments. The few who stood up for no professionalization were old timers by their own admission. Perhaps many who do not favor professionalization did not take the trouble to reply.

The chief arguments against any further attempts at professionalization seem to be the following:

1. No two industries have the same transportation problems. Many industries have the problem of operation only and their employe could be called anything and still occupy the position of traffic manager. In some cases it is not necessary that this man know anything about rates; in other cases he is essentially a rate clerk and it is not necessary that he know anything about operation, or in many cases even about routing. In many industries it is a combination of the two. A large number of indus-

Here is the proposal for a Certified Traffic Manager (originally presented in DISTRIBUTION AGE for October)

For those in traffic management less than 10 years:

1. Seven years' experience and training under a traffic manager who has from 10 to 15 years' experience; or graduation from a university or college with a major in transportation and three years' experience under a similarly qualified traffic manager. This gives the necessary background of experience or education plus experience, and, presumably, equalizes the opportunities for college and non-college applicants.

2. Passing of a comprehensive examination or set of examinations, to be administered by the National Industrial Traffic League or whatever organization may be set up, and and

of at least the standard used by other groups such as Certified Public Accountants.

3. Admittance to practice before the Interstate Commerce Commission.

For those in traffic management over 10 years:

For these, it is thought that previous admittance to practice before the Commission plus at least 10 years in a responsible traffic position should entitle them to become Certified Traffic Managers. For those who have not been admitted to practice but still have the years of experience, admittance, sponsored by three members of the governing board of the National Industrial Traffic League, should be sufficient.

tries do not require that the man in traffic work ever handle a matter before a rate-making body, or a public service body of any sort. Each man has his own individual type of operation. In many cases the rate matters or general traffic matters are handled by an association and the man fulfilling the duties of traffic work, in many an organization, does not have to concern himself with such problems at all.

2. The older traffic men feel that any man in their organization, even if he has only a grammar school education, with good common sense and native ability should have the opportunity of rising, and not be kept down by a set of rules and regulations set up on a strait jacket basis that will prohibit him from doing so.

3. Professionalization attempts are just a lot of unnecessary effort that can't accomplish any particular good because it will be impossible to pass a law which would state what title a man should have in an organization in order to work there.

4. Professionalization would tend to "push traffic matters down the wrong street." When one speaks of the professions, one's mind turns automatically to law, medicine, dentistry, etc. Traffic management should not be grouped with these endeavors because in the last analysis the traffic manager is a business man and his duties are largely the purchase of transportation service.

5. Professionalization can in no way determine the fitness of an applicant for any position. No two

Merchant Marine Panels Hear Potts, Elwell

Two DISTRIBUTION AGE consultants discussed important phases of distribution at the American Merchant Marine Conference, Oct. 17, at the Waldorf-Astoria Hotel, New York.

Matthew W. Potts, materials handling consultant, told the panel on stevedoring and cargo handling that wider use of palletized unit loads would cut costs and expedite stowage.

Speaking before the panel on intra-coastal and inland waterways, Henry G. Elwell, traffic consultant, declared that "although inland waterways are comparable in importance to a powerful navy and a strong merchant marine fleet, each project should be carefully analyzed to save the taxpayer's money."

companies operate along the same lines, whether competitors or not, and all a traffic manager has in going to a concern and applying for a job is a few basic fundamentals. Knowledge of rates on coal and lumber, for example, is not much use in the chain store field and knowledge of L.C.L. traffic, which is necessary in the chain store field, is of very little use in the steel business.

6. The activities of a full-time traffic manager employed by any industry or enterprise vary so greatly, depending upon the activities of the concern by which he is employed and the duties entrusted to him, that they do not seem to be subject to professionalization any more than the activities of other department heads such as purchasing agents, sales managers or production managers.

TABLE I
Traffic Men Had This To Say About The Proposal

Point Commented On	YES		NO		Doubtful		No Comment	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Is it too easy for the old timers?.....	19	20.21	75	79.79				
Is it too hard for the youngsters?.....	13	13.83	81	86.17				
Is it workable?.....	76	80.85	8	8.51	10	9.40		
Do you favor professionalization?	91	96.81	3	3.19				
Is present plan for admittance to practice before ICC satisfactory?..	26	27.66	14	14.89			54	57.45

While the majority of respondents favored our proposal, several suggested modifications, particularly concerning admittance to practice before the ICC, as follows:

1. Admission to practice before the ICC under Rule 8b of the Commission's Rules of Practice, which requires a written examination, should be enough.

2. Admission to practice before the ICC as a requirement is too restrictive. It is not necessary or even desirable that all men engaged in professional traffic work be admitted to practice.

3. Admittance to practice before the ICC is not in itself sufficient evidence of a person's qualifications to be a Certified Traffic Manager. Attorneys having no practical experience may be admitted to practice without examination of any sort.

Two traffic men commented on the fact that our plan makes no provision for crediting years worked for a railroad as counting toward "experience and training" whereas railroad employees, particularly rate, tariff, claim and interstate commerce clerks are often employed as traffic department employees or even traffic managers. It was also pointed out that there are railroad traffic officials who are ICC practitioners and who often become traffic managers in private industry and that these should obtain some credit for their previous experience.

There is no objection at all to counting suitable railroad experience although it must be admitted that this is usually on the opposite side of the fence from the actual traffic man's experience in industry, i.e., the sellers' side rather than the buyers' side. In any final plan that may be adopted by any group that sponsors professionalization it would be well to consider the points mentioned here as to railroad experience.

Question of Sponsorship

There was some difference of opinion expressed on the matter of the sponsor of any organized effort toward professionalization. The majority agreed with our choice of the NIT League, on the basis that it already has the necessary legislative recognition, and that through

(Continued on page 94)

Integrating and Coordinating Transportation in Business

Transportation is an important function and it will be found that where this function is not given proper recognition inefficiency and high distribution costs are an absolute certainty. No business with annual sales of \$2,500,000 or more can conduct its affairs properly without the services of a traffic manager, who should be given complete control of all transportation functions.

THE familiar phrase, "Does Distribution Cost Too Much?" was the interrogatory title of a book published in 1939 by the Twentieth Century Fund. The book revealed that "about 59c. out of the consumer's dollar goes for the services of distribution and only 41c. for the services of production . . ."

Obviously, there are many phases to the problem of distribution costs. There are costs pertaining to transportation, packaging, handling, sales, advertising, retailing, etc. This article will concern itself with just one phase: the failure on the part of business to integrate and more closely coordinate transportation in its daily functions, and the inevitable effects this failure has had upon distribution costs.

Storage Procedures

It should be understood that the term "transportation costs" as used in this article embraces every unit necessary to move materials or products from one place to another: manpower, materials handling, equipment, motor trucks, steamers and railroads. It includes the methods and processes for the application of these transportation units together with packing, loading and storage procedures and requirements.

The transportation specialist engaged by industry must not only know the various ramifications that make our transportation system "click," he must also know what makes his own business "click." While the transportation system functions in a regulatory strait-jacket which virtually sets forth how, where or when it may operate, similar regulations also govern general business. On this point there seems to be general misunderstanding. Business executives who think that federal and state regulations affect transportation agencies only are misinformed. Someone should conduct a survey to determine how many business managers have read the regulations. Living with the OPA has given business men a taste of the significance and effects of such federal regulation. They have been praying for its discontinuance. But

In addition to his duties as general traffic manager for one of the largest wholesalers of food products in the country, Mr. Pasarella is transportation consultant to the National-American Wholesale Grocers' Assn., member of the shippers' advisory committee of ODT, industry representative on the control board of OPA in the New York region, and member of the motor carrier employers' joint wage scale committee of New York.



By CHARLES A. PASARELLA

Traffic Manager



Note: The views of the author do not necessarily reflect the views of his company.

so far as we can see, there never will be a discontinuance of strict, federal and state regulation of transportation. It is the duty of a traffic manager to synchronize the functions of his business so that the effects of the regulatory restrictions may be lessened and in some cases partially removed.

From the standpoint of organization, and to insure efficient management, business has recognized that while the functions of finance, production, purchasing and sales are separate, they require integration. This integration of accepted business functions has increased efficiency and reduced operating costs. Also, the employment of specialists in each one of those fields has come to be the recognized procedure. However, this is not true with respect to traffic management.

While the function of traffic management has been recognized by many large corporations, this is true in part only with respect to medium-size organizations, and is almost completely ignored by relatively small companies.

Four Groups

After 25 years in transportation and in meeting business executives throughout the country, and also by reason of my consulting position in the National-American Whole-

sale Grocers' Assn., I have come to the definite conclusion that with regard to the integration and coordination of transportation, business falls into four groups. The first classification covers the very large industries. In such organizations, transportation is a major department, and from a functional standpoint is given complete control. It is on the same level of authority as other major departments in the company. The annual sales of such companies usually ex-

ceed \$30,000,000. In the second group are found companies with sales from \$15,000,000 to \$30,000,000, and where there is only partial integration but fairly good coordination. In this classification, the majority of companies give complete control to the transportation specialist, but some do not. In the third group are found companies with sales from \$5,000,000 to \$15,000,000, where there is some integration and partial coordination. In such cases a traffic manager is engaged, but his authority and control of transportation is limited and possibilities of coordination are restricted. In the fourth group are companies with sales below \$5,000,000, and where the traffic functions are diffused. In such companies you will find that the shipping clerk is considered a transportation specialist and he sometimes calls himself a traffic manager.

Doctor of Distribution

(A Tribute to Traffic Managers)

By J. LEO COOKE

Vice President
Lehigh & Lackawanna Warehouses
& Transportation Co.

THE single individual who controls more than half of your business—59 per cent of the consumer's dollar—is your traffic manager. In him has always been vested a great responsibility, for the welfare of the company. Now that the war is over, his responsibility will be enormously increased by the complicated network of new markets and accelerated methods and means of distribution.

Your traffic manager is the specialist who controls the heartbeat of your organization. He is a specialist. He is the doctor of your product's distribution.

Because 59 percent of the consumer's dollar is required for distribution, the working details of the traffic manager's job are of greater importance than many executives realize. The traffic manager knows, through years of study, the classification structure of commodities, the rates assessed by rail, water, truck, air and competing lines as well as all phases of transportation. He is an invaluable consultant on many phases of modern distribution.

The traffic manager is equipped to give advice on plant location. He knows from what point the best service and rates can be realized in connection with the origin of the raw materials used. He knows how the right location can help to determine the most economical distribution of a finished product.

The traffic manager is the man to consult even in regard to the decision of a name for a new product. He is in a position to clarify any restrictions that might affect rate classifications

when transportation is concerned. The traffic manager insures smooth production operation. On him rests the responsibility of having raw materials available when needed, of moving finished products promptly.

The traffic manager must see that a product leaves a plant and arrives at its ultimate destination in perfect condition. From the moment a product leaves the factory until it is in the hands of the ultimate user or consumer, the product is the traffic manager's responsibility. For this reason he is the admitted expert on the product's container. He knows the ramifications of ICC regulations. He can solve the problems of a container's wrapping, its durability to shock, handling, weather, its weight, dimensions and bulk.

The traffic manager, in cooperation with production and sales managers, decides where stocks will be maintained. In some cases they may prefer to have spot stocks kept at various warehouses, and stop-over privileges offered by a railroad used to advantage. This method expedites sending merchandise by carload quantities and when local trucking companies can be used for distribution. In the case of merchandise for export, it may be well to forward cars under a storage-in-transit arrangement.

These are some of the duties of the modern traffic manager. Soon, many businesses will operate on an international scale, which will mean many changes in business practices. Then even more than now, the traffic manager will be recognized as the doctor of distribution.

Limited Authority

The results of this situation may be better understood by an illustration. By reason of the writer's consulting capacity in a national association, the head of one of the member companies for many years telephoned me for transportation information. The sales of this company were reputed to be approximately \$15,000,000. I often jokingly remarked that he should establish a traffic department to take care of his needs. His answer always was that he would "as soon as our company grows to the size of yours." Finally, he did engage a traffic manager, but extended to him only limited authority. Unfortunately, soon afterward the company was merged with another and the members of the executive staff of my friend's company found themselves without any jobs, including my friend who was the president.

Yes, transportation is an important function and it will usually be found that where this function is not given proper recognition, inefficiency and high distribution costs are an absolute certainty. No

(Continued on page 85)

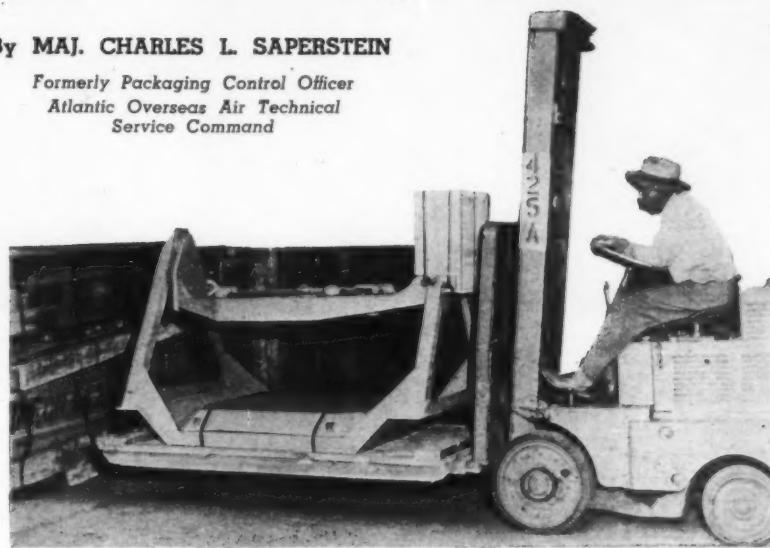
Packing and Packaging Control

By MAJ. CHARLES L. SAPERSTEIN

Formerly Packaging Control Officer
Atlantic Overseas Air Technical
Service Command

The evolution of the packaging and packing control specialist is of particular interest to traffic men. In the army, where the idea crystallized under pressure of war shipments, the Packaging Control Officer worked hand-in-hand with the Transportation Officer. In fact, many of the responsibilities of packaging control originally were included in the duties of the transportation section. At all times the two functions complimented each other.

All packing, boxing and crating are intended to protect materials and products while being transported or held in storage, two major concerns of traffic management. In some Army Air Force installations, the Transportation Officer also was the Packaging Control Officer. However, more frequently the responsibilities were separate for better handling of distinct and specialized tasks. But each did a better job through collaboration with the other.



This heavy cast engine mount, when originally packed in the wooden crates shown at left, broke through the sides. By reversing the drip pan so that it would not hold water, and by developing a protective device for the worm gear at right, the crate was eliminated, and the engine mount became an outdoor, rather than an indoor storage item.

OUT of our experiences with the tremendous job of moving war supplies, a new peacetime specialist in distribution has been born. The armed services early found a packing or packaging expert or "engineer" at the source was not sufficient to insure safe arrival at ultimate destination of all types of merchandise. War is a severe merciless testing caldron. Supplies packed for shipment according to specifi-

cation and on basis of outmoded research simply did not get through.

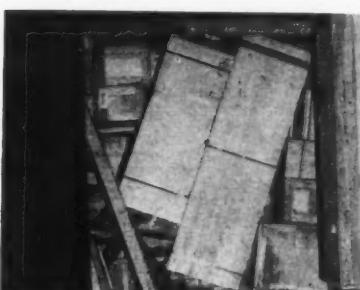
More and more as damage and waste piled up, a new and broader responsibility began to crystallize. Protective packing, inner unit containers, proper use of shipping cases, identification, handling in transportation and freight inspection were seen as parts of the same objective. There gradually evolved at each supply command

an office which coordinated all phases of packing, packaging, boxing and crating. The director of this activity was the "Packaging Control Officer."

He acted as freight inspector for all departments receiving, handling or shipping cargo. He advised on procurement and purchasing. He established standards for processing, preserving and safeguarding contents of con-

(Continued on page 80)

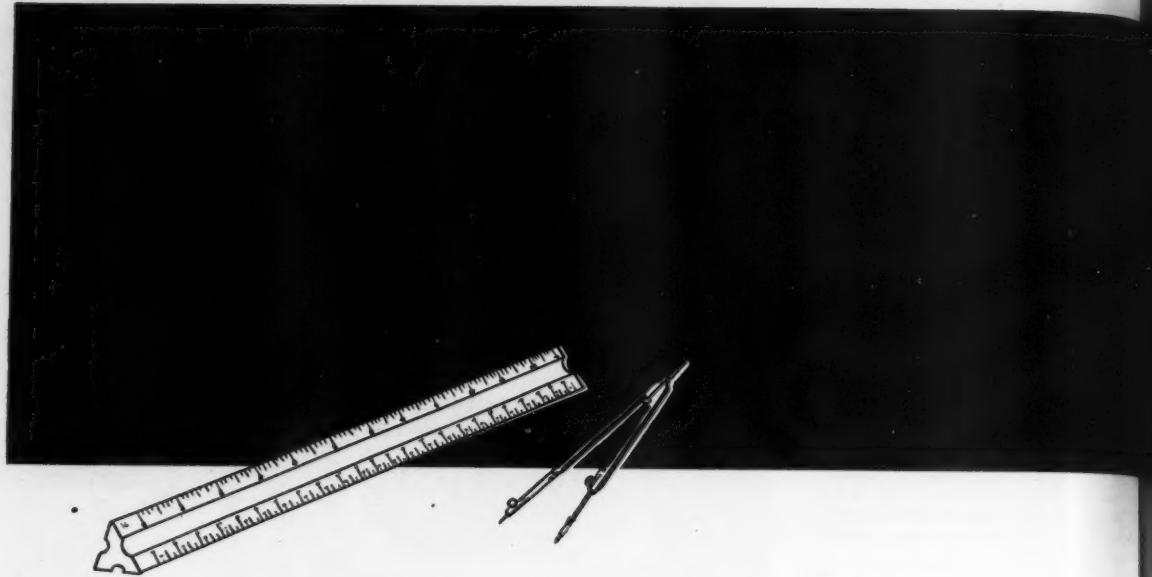
When railroad car blocking fails without visible damage to contents, the packaging control technician verifies the condition of the merchandise, and determines the cause of the failure.



Contents of the shipping carton at right were packed in wooden box at left. Greater cost of the wooden box was more than offset by economies effected in shipping and in storage.



To avoid pilferage in transit, shippers were instructed to remove identification markings from containers carrying such items as flight jackets, watches, and other special material.



THE industrial traffic manager is a business executive. When he propounds a problem, he expects to receive a business-like solution.

The industrial designer is a business consultant. When he strives to solve a problem, he draws upon a vast store of practical business experience, derived from close association with a wide variety of business problems.

Industrial traffic manager and industrial designer speak the same language. The designer expresses himself in three dimensions . . . art, materials, and mathematics. Essentially, however, both are practical business specialists. Each is worth his weight in profits to top management.

It is the primary purpose of the traffic manager to make distribution more efficient and more economical by bringing about a reduction in transportation costs. One time-tested method of accomplishing this objective is the adoption of a shipping container which is designed to move through the transportation phase of distribution with the utmost possible economy.

Improved Cartons

It is the function of the industrial designer to build the required special qualities into the existing

container; or to design a new container which will overcome all the problems posed by a particular situation.

The industrial designer approaches this task with a complete understanding of the properties of packing and packaging materials in their functional uses. He is familiar with the requirements of the traffic manager, the production department, the sales department, and the agency of transportation. He is aware of the packaging preferences of the ultimate consumer. He makes certain that value is received for each package and packaging dollar expended.

Even the most talented industrial designer must have the cooperation of the traffic manager when planning a shipping container. These two specialists, together with the general manager and other interested executives, should discuss such matters as loss and damage claims through faulty packing; types and payloads of carriers in use; insurance rates of merchandise in transit; marketing methods; and the design of the product itself.

Experience has demonstrated that the most successful shipping container is the result of integrated efforts of the industrial designer and company department heads who are specialists in the

various phases of distribution. The collaboration of the traffic manager is especially important, since many packing and packaging economies affect his departmental budget.

In support of this statement, let us examine the case history of a prominent garment manufacturing organization.

High Costs

It was customary for this company to ship merchandise directly to consumers in individual telescoping boxes. These boxes, which were of traditional style in the trade, appeared cheap, but actually of expensive construction, were unsatisfactory for the following reasons:

1. The raw material used in the construction of the container was too costly in view of its functional purpose, which was to protect the product in transit from the mill to the consumer.

2. Since the box was rigid, and since it could not possibly be filled to cubic capacity because of the nature of the product, considerable loss was incurred through crushing.

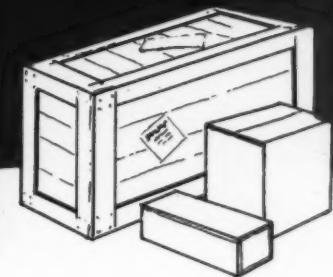
3. A certain proportion of the company's C.O.D. deliveries were not accepted by the purchasers for various personal reasons. When this merchandise was returned to the mill, it had to be unpacked and

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It is the purpose of the traffic manager to make distribution more efficient and economical by bringing about a reduction in transportation costs. One method of accomplishing this objective is the adoption of a shipping container which is designed to move through the transportation phase of distribution with the utmost possible economy.



returned to stock. As the organization transacts a large volume of C.O.D. business, this unpacking operation required the services of nine workers, and was a source of much expense, because the workers were not productively employed.

4. Because of the size, shape, and weight of the box, freight charges were proportionately higher than other distribution costs.

Great Economies

After a series of conferences among company executives, in which the traffic manager played a prominent part, an industrial designer was consulted. After a careful study of the situation in all of its ramifications, this industrial designer introduced a new packaging approach which resulted in tremendous economies for the organization.

The original cardboard box was eliminated. In its place, a kraft paper wrapper, especially designed for the purpose, was substituted.

For the first year the new wrapper was in use the company's shipping expenditures were \$22,000 less than for the preceding year.

This sum was saved because the kraft wrapper was much lighter than the cardboard box. Although the weight saved per unit was small, when multiplied by the millions of units shipped, the overall

savings in dollars and cents were considerable. However, this was only the start of economies made possible by the adoption of the new container. The kraft wrapper yielded under pressure, instead of breaking, as the cardboard box had done. This fact was responsible for the practical elimination of loss and damage claims caused by faulty packages. In addition, handling, packing, and receiving costs were reduced.

Eight of the nine workers who had been employed in unpacking the C.O.D. returns were made available for assignment to more productive work. One man was able to handle the same volume of returns in the new package.

American business executives in increasing numbers, on the basis of practical demonstrations such

as the one presented above, are becoming convinced that distribution can be made more efficient and more economical through the proper application of industrial design.

Packing Profits

Profits are made on product mark-ups, but they can also be earned on packing economies. Management should not wait until actual losses are incurred through inefficiencies in shipping before consulting a specialist.

In these days of ever-increasing competition, it might be good business for company executives, under the leadership of the traffic manager and with the guidance of a skilled industrial designer, to conduct a periodic checkup of package and packing methods.

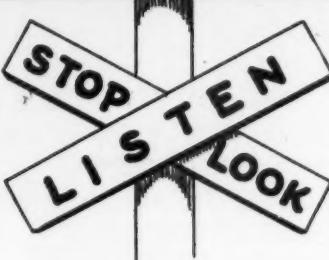
The Packing Technician

A skilled packing technician, according to E. W. Preston, assistant sales manager, industrial division, Sherman

Paper Products, Newton Upper Falls, Mass., must have a thorough knowledge of:

1. Transportation hazards.
2. Control of methods.
3. Materials.
4. Package development.
5. Costs.
6. Labor supervision.

Demurrage Control



Demurrage can be controlled. When it is not, front office management and not the traffic department often is to blame. It is time for executive management to wake up, to look at its unwarranted capital donations to the rail carriers. Stop, look and listen to your traffic manager in the control of demurrage.

By DOUGLAS MILLER
Traffic and Warehouse Consultant

Mr. Miller is general traffic manager of The Englander Co., Inc., Brooklyn, N. Y., an ICC practitioner and a member of the National Industrial Traffic League, the Army Transportation Assn., the Atlantic States Shippers Advisory Board and the Traffic Club of New York.

space occupied comprises an area approximately 225,000 sq. ft.

This plant is served by a three-car private siding. Two elevators are operated. One is 4,000 lb. capacity which operates between the first and second floors of the smaller building, while the second elevator, of ancient vintage, operates between the basement and fourth floors of the main building. This main elevator has a rated capacity of 5,000 lb., but 3,300 lb. is about all it can handle safely.

Now among the problems of this plant is that of demurrage. Demurrage can be controlled. When it is not, front office management

and not the traffic department often is to blame.

The responsibility for demurrage rests, in no small part, with the purchasing and production departments as well as with the executives of a business. The physical conditions of a siding play a deciding part in demurrage costs. In order to properly analyze these costs, it is necessary to determine what causes demurrage.

Executives to Blame

At the time the plant under consideration was being considered, how much thought was given to unloading and shipping facilities by the management? Did the executives consider the question of siding capacity? Were competent persons consulted as to the needs of the inward and outward movements of raw materials and finished products, keeping in mind the existing railroad sidings and determining whether those sidings could be extended or capacity increased in order to handle potential business?

Apparently, little or no consideration was given to these factors. So from the onset, the management of the business was guilty of sheer neglect which, in years of operation, has resulted in the donation by the firm of many thousands

(Continued on page 91)

THREE are many purchasing departments of manufacturing companies that purchase material without any thought of scheduling the inbound movement. Management knows the advantages of scheduling manufacturing. Progressive and successful organizations know the value of scheduling the delivery of raw materials.

If a purchasing department keeps the traffic department advised of orders placed with vendors so that the materials or products ordered may be routed properly and deliveries timed to avoid congestion, a great deal of demurrage can be done away with. Despite the indifference of management in many instances, yes, in spite of the executive, purchasing and production divisions, there are traffic managers who have been able to reduce and control and, in some cases, to wipe out this unwarranted and uncalled for cost.

A Case History

Here is an actual case history. The name of the firm is fictitious.

The Parkside Manufacturing Co., situated in a large industrial city, is a manufacturer of national scope and one of the leaders in its field.

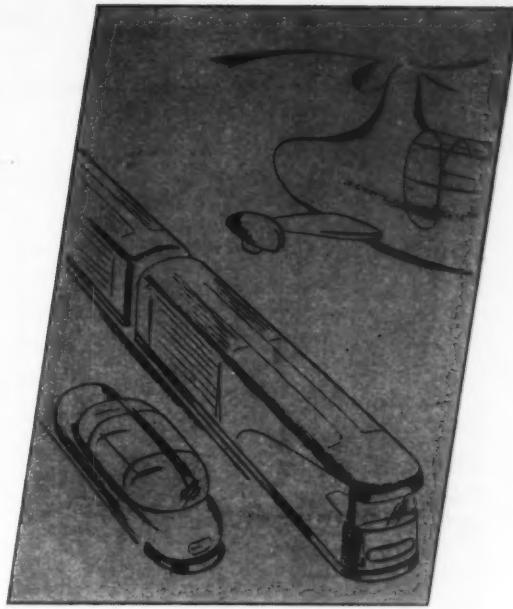
Its plant consists of two adjoining buildings. The annex is of two stories, while the main building is four stories and basement. Total

MAGNESIUM

The Metal of Motion

"If it moves, make it lighter," say the magnesium producers. They offer a new, light weight, high strength metal alloy which has many important applications to the construction of all types of carriers, containers, and materials handling equipment.

By JOEL KEITH
Associate Editor



FROM the subterranean brines of Michigan, from the ores of Nevada, and from the limitless supply of ocean water off the coast of Texas, has come magnesium, a modern metal of motion. This new metal is of great importance to the traffic manager, for its effective utilization will bring about lower freight rates by increasing the payloads of carriers, and by permitting more economical operation of motive power plants.

Since it is the lightest metal produced commercially at present (it is 1/3 lighter than aluminum), magnesium has many applications to all the instruments of transportation. It will bring relief from the burden of dead weight for the box car and the hand truck; for the airplane and the highway carrier. Generally speaking, nearly anything that moves can be made to move more efficiently if it is made lighter, and magnesium promises to make lighter anything that moves.

Magnesium Alloys

The lightest of all commercial metals is one of the newest of metals. It was first produced on a large scale in 1915, when chemists of the Dow Chemical Co. developed an electrolytic process for recovering magnesium from a prehistoric

sea imprisoned 5,000 ft. below the surface of inland Michigan.

Pure magnesium is a soft, silvery substance which possesses little strength until it has been combined with certain other metals. When the proper proportions of zinc, manganese, and aluminum have been added, the resulting magnesium alloy becomes light weight, high strength engineering material. It is claimed to have the best machinability of any commercial metal; a higher capacity for absorbing shock than any other commercial metal; strength approaching that of low carbon steel; and very low susceptibility to continued vibration and atmospheric corrosion.

The qualities of magnesium have attracted the attention of transportation men to such an extent that a special traffic committee, under the chairmanship of J. L. Briggs, traffic manager, Revere Copper & Brass, Inc., has been formed by the Magnesium Assn. It is the purpose of this committee to recommend appropriate action so that magnesium products will receive fair and correct treatment by all transportation facilities.

The interest of this group of traffic men in magnesium is two-fold. Obviously, if the dead weight of any freight carrier can be reduced by a considerable percentage,

the payload can be proportionately increased. How much dead weight can be eliminated through the use of this featherweight metal is indicated by the example of an aircraft junction box and cover exhibited at a recent convention of the Magnesium Assn. in New York. This device weighed only 25 percent as much as an identical junction box constructed of steel.

More Efficiency

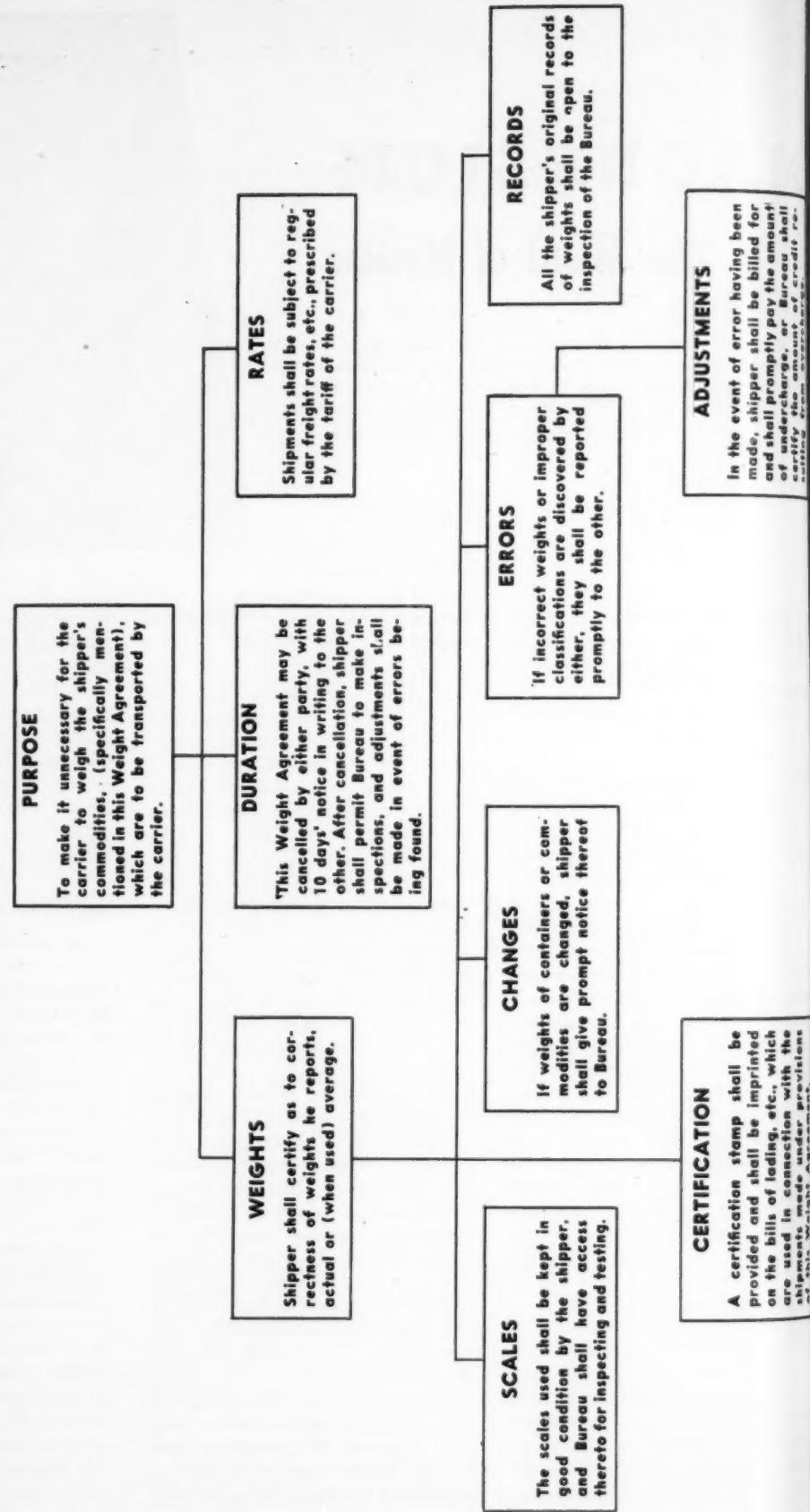
In addition to the economies offered through increased payloads, magnesium holds forth the promise of greater range, greater speed, and greater efficiency of operation for power plants of all carriers. Every engine of locomotion consists of a myriad of moving parts. A certain proportion of fuel is used to keep these parts in motion. A reduction in the weight of these parts means less fuel will be expended to keep them moving; and that a given amount of fuel will move them more rapidly.

Many prominent industrial firms are considering magnesium for use in the construction of packing containers. Certain types of machinery are shipped in steel cases at present. If magnesium containers were substituted, lower freight rates would be available, and hand-

(Continued on page 60)

CHART OF WEIGHT AGREEMENT

BETWEEN A SPECIFIED SHIPPER AND
A NAMED FREIGHT INSPECTION BUREAU AUTHORIZED
BY CARRIER TO EXECUTE THE AGREEMENT



The Weight Agreement

While a shipper is not unduly committed when signing a weight agreement, he does make it possible under the arrangement to save time and labor through the elimination of unnecessary weighing of his shipments.

By HENRY G. ELWELL
Traffic Consultant

WITH few exceptions in the shipping of goods, weighing is a cardinal function, and it consumes time and labor. Anything that a shipper can utilize to reduce this time and labor provides for resultant reduction in cost of distribution.

In this article we refer to one means of eliminating unnecessary weighing, specifically as related to shipments tendered to railroads. Let us first consider the matter of weighing in general, the use of estimated weights, and certain citations from Interstate Commerce Commission decisions that stress the importance of weighing.

It is a foregone conclusion that before a carrier can prepare any freight bill for transportation charges, where weight is the measure, the weight of the shipment must be determined. While a carrier "should not be required to accept weights ascertained by shippers on private scales" (66 ICC 300), nevertheless, in many instances, a carrier does abide by the weights a shipper specifies in a bill of lading which weights are based on prior arrangements. We shall enlarge upon this point in succeeding paragraphs.

ICC Rulings

As to weighing in general, the Interstate Commerce Commission has stated that "prima facie the system of charging by weight is more just than any other. It is the only system whereby the charge is

made proportionate to the service rendered. . . . The general rule is to charge by weight where weight can be a proper measure" (3 ICC 241). The Commission also has said: "The weight of an article usually includes the weight of the package" (5 ICC 193).

Sometimes it is difficult to obtain actual weights, such as on fresh fruit and vegetable shipments, in which cases estimated weights may be used. In regard to this practice the Commission has said: "Carriers in order to facilitate the movement of business may fix an estimated weight upon certain standard packages upon which a rate is based" (12 ICC 306). However, "in the absence of proper tariff authority therefor, it is unlawful to use estimated weights that are less than the actual weights" (63 ICC 18).

Estimated Weights

There is justification for using estimated weights in given circumstances, but these weights must be based on some tangible reason. In connection with this statement we quote from the Commission as follows: "The purpose of estimated weights is to avoid the delay, expense, and labor incident to the actual weighing of each particular shipment" (16 ICC 376). "If an estimated weight is less than actual weight, the shipper obtains free transportation of so much of his shipment as is in excess of the estimated weight, and if greater than

actual weight the carrier obtains a revenue upon the excess not hauled. Therefore, estimated weights should correspond as closely as practicable to the carrying capacity of containers, when properly placed, plus the weight of the container" (120 ICC 733).

Actual Weight

The actual weight of a shipment should be ascertained whenever possible, "but this practice is not always convenient, practicable, or even advisable" (13 ICC 401). In reference to using estimated weights on shipments, it all boils down to what can be done in the matter of weighing particular commodities. On the whole, actual weights ought to be used, as pointed out by the Commission when it said "the shipper should be required to pay upon the actual weight" (14 ICC 75).

As has been mentioned, it takes time and labor to weigh each individual package of a shipment. This is emphasized where the packages are of uniform size, shape and weight. Here enters the possibility of using what is known as the weight agreement, which can be made effective upon request from a shipper to a carrier. By the use of the weight agreement there is avoided the necessity of weighing each unit prior to or at the time of shipping, and also estimated weights are eliminated. A standard weight is ascertained and both

(Continued on page 89)

INDUSTRY is becoming conscious of the importance of materials handling in all phases of distribution, as well as in the various stages of production.

Undoubtedly, many large industries will develop departments specializing in materials handling, and will break them down into various sections. One section probably will specialize on handling within the plant, namely, on production operations, which will include process conveyors, machine layouts, etc. This portion of the work will be handled by industrial engineers, whose interests are in cutting production costs.

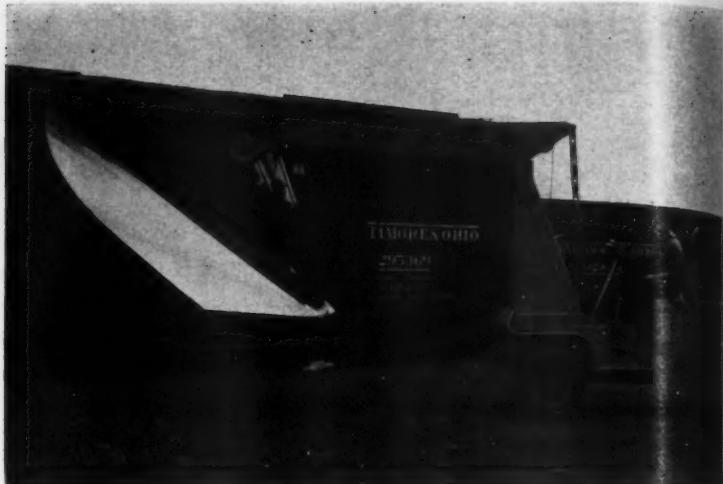
Moving Materials

However, they will be so burdened with detail that they will not go beyond the finished product, at which point packaging experts will take up the matter of containers, packing, marking and other preparations for shipments. When the finished product is ready for shipment, the traffic department takes up the task of moving the material safely, efficiently and economically from the producer's plant to the user or consumer.

At the same time the traffic department is responsible for moving materials and products from other points into its own plant for use or processing.

Observation and experience lead me to believe that very few traffic departments are really performing their total functions as distribution specialists; they are interested mainly in routing, rates and insurance and related matters.

Very few of these departments initiate the request for better packing. Very few ever take into consideration the various handlings involved in getting products from the vendors into their own plants nor, do they take into consideration the handling problems involved in getting the finished products from their own plants into the hands of customers.



Packing + Handling

The traffic manager should be a distribution materials handling specialist or a container and packing specialist. While the traffic manager can be effected in transportation costs by using

By MATTHEW W. POTTS

If industrial traffic departments are to increase their importance, traffic managers should be distribution specialists in the fullest sense. This means that they must concern themselves with methods of packing outgoing products, and also

be interested in the methods of packing used by the vendors of incoming commodities. Some of the advantages that may be obtained by close coordination and the proper integration of various phases of distribution were out-



THE pictures shown were taken in the plant of Carl H. Frink Mfg., which produces the Frink "sno-plows." The use of the portable crane on this operation is said to make it possible to load in half the time with fewer men and with greater safety. In addition, the equipment is available for many other handling jobs throughout the plant where comparable time saving has been made.



ng + TRAFFIC = ?

specialist. He should understand packing and should not become a materials handling specialist. He should take a greater interest in all the traffic manager should take advantage of the many savings that modern methods of packing and handling.

OTTS Materials Handling Consultant

lined by the writer in the articles on "Design for Industry" which appeared in this magazine in June and July, 1944. In those articles the possibilities of getting packages in such a form as to expedite handling at the receiving end were

shown, and how this better handling helped in the reduction of demurrage charges, speeded up the time of unloading trucks, made for safer and better handling of the materials. It also reduced accident hazards to the handlers, and per-

mitted the goods to be placed in proper storage more quickly and economically.

Proper Packing

Another example of proper co-ordination in the handling of supplies was developed by the Navy Clothing Depot at Brooklyn, New York. The need of better handling methods for incoming materials, their storage and the storage and shipment of finished products, brought about the development of a coordinated system which completely changed the method of packing incoming cloth. The packing and shipment of the finished product as palletized unit loads, saved time, labor and money not only from the clothing depot to the first navy warehouse, but at every subsequent stage from ports of embarkation, fleet bases, advance bases, to the final users, the seamen with the fleet. This change was not accomplished by traffic men but by materials handling and packaging experts. However, it is indicative of what could be accomplished by traffic managers if they knew something about packing methods, materials handling and other phases of distribution.

Proper packing is important in order to keep down claims. Proper packing is important as a means of reducing handling time. Proper packing affects freight rates, both on outgoing and incoming material. Proper packing will permit the use

(Continued on page 60)

Non-Scheduled Air Cargo

PART 3

The Attitude of Established Airlines

By JOHN H. FREDERICK, Air Cargo Consultant

THE established airlines of the United States are for economic regulation of non-scheduled and contract air carriers. So are most of the applicants representing feeder lines which also, of course, will be operated on schedule. This attitude is to be expected.

Opinions of the airlines were expressed at the CAB non-scheduled air carrier investigation by Dr. Lewis C. Sorrell, Director of Research, Air Transport Assn., which speaks for that branch of the aviation industry. According to Dr. Sorrell's testimony, airline attitudes toward economic regulation of non-scheduled air cargo carriers may be summarized as follows:

1. Air cargo development chiefly requires scheduled service. Non-scheduled transportation will probably account, in the future, for a rather small proportion of the total cargo carried by air. The type of operations suitable to air cargo development, therefore, is likely to be that rendered by common carriers operating over regular routes. Contract or irregular route services are likely to be of much less importance.

2. The bases for CAB classification of air cargo operations should be: (1) General freight versus special commodities. (2) Common v. contract carrying. (3) Regular v. irregular route operations. While scheduling is an important aspect of service, it does not of itself constitute a basis for the classification of air carrier operations.

3. Classification of services or operations does not determine the classification of operators, unless the specialization of carriers tends to coincide with the specialization

of services. For example, there should be less tendency in air transportation for the development of irregular route carriers as a class; and there is greater likelihood than there was in the field of highway transportation that the need for irregular route services can be met by the regular route carriers, both trunk line and fixed base. This is because of the great flexibility of the airplane. In this case the distinction, regular route versus irregular route, would not serve to differentiate between the classes of operators. Therefore, for the present at least, the classification of airline operators should be in terms of trunk line carriers and fixed base

operators. Any further classification either in terms of services or equipment should wait upon future developments in the field of specialization of services by operators.

4. Duality of contract and common carrying should be allowed. There is no volume of air cargo in sight to sustain contract operation alone, as has been true in motor transportation. While some few operators might be able to match contracts and secure reasonable load factors in both directions (without such an arrangement, a contract carrier will find it difficult to survive), in more instances it will be necessary to supplement

(Continued on page 52)

TABLE I
Basic Information for Highway Carriers, Airlines and Class I Railroads*

	Class 1 Truck Lines (\$500,000)	Class 1 Bus Lines (\$500,000)	Domestic Airlines	Class 1 Steam Railroads
Number companies.....	236	88	17	132
Miles of route per carrier.....	2,670	1,600	2,439	740
Assets per carrier.....	\$418,000	\$1,805,000	\$7,230,000	\$223,583,000
Operating revenues per carrier.....	\$1,240,000	\$2,655,000	\$6,279,000	\$ 58,580,000
Ratios:				
Assets per mile of route or line.....	156	1,135	2,984	120,05
Revenues per mile of route or line:				
Passenger.....	....	1,668	1,776	6,29
Mail.....	....	....	564	66
Express.....	....	....	163	46
Freight.....	464	....	....	25,00
Total Revenues.....	464	1,668	2,503	33,32
Operating Ratio.....	95.3	83.2	92.1	71.2
Revenues per dollar of assets.....	\$2.96	\$1.47	\$1.28	\$ 3.1

* The year 1942 is taken as the basis for all except operating ratio where the average 1941 was used. Class 1 motor carriers with revenues in excess of \$500,000 were used rather than all such motor carriers, because more detailed information was available regarding their activities.

Airfreight

Success Story!



First Airgo fashion shipment is loaded at LaGuardia Field, N. Y. At left are Peter Stelling, of Joske's, and Nettie Rosenstein. Special shipping bag weighs 3 lbs... holds 15 to 30 dresses.



2. Shipment departs from LaGuardia Field in late afternoon, arrives in San Antonio 5:35 the following morning.



3. Nettie Rosenstein garments are on sale as Joske's opens at 9 a.m. Latest fashions are available to San Antonio women at same time as to New York women!

UP-TO-THE-MINUTE STYLES SHIPPED FROM NEW YORK TO SAN ANTONIO BY AIRFREIGHT

Newest fashions by Nettie Rosenstein, famous New York designer, arrive "on hanger" at Joske's of Texas — ready-for-sale at same time as in New York.

ONCE again, American Airlines' Airfreight service makes possible a fashion first! Smartly styled Nettie Rosenstein dresses leave New York in late afternoon, reach San Antonio at 5:35 next morning and are on sale when Joske's opens at 9 o'clock. Garments arrive wrinkle-free, thanks to the new, lightweight garment bag in which they are shipped—*on hangers*. And this is not merely a novelty—it's sound, profitable merchandising. Airfreight's low rates make its use practical for day-in-day-out shippers!

This is but one of a mounting number of cases in which progressive shippers and recipients are utilizing American Airlines' Airfreight. Why not find out now how Airfreight can work for you? The possibilities for benefits by Airfreight are many — including extended markets, greater profits, increased good will, reduction of wasteful inventories, lowering of storage, packaging and spoilage costs. Even if you think your business is different, why not consult the Airfreight research staff and Airfreight sales engineers? They're ready to study your special requirements. Write to Airfreight Division, American Airlines, 100 East 42nd Street, New York 17, N. Y.

*American Airlines International Airfreight
is available to and from Mexico, too*

AMERICAN AIRLINES System

THE NATIONAL AND INTERNATIONAL ROUTE OF THE FLAGSHIPS

Used in Atomic Bomb Production



Lightweight electric handtruck employed in atomic bomb production at Oak Ridge, Tenn., was painted white for surface checking after daily washing-down.

By ROY L. WOLTER

Automatic Transportation Co.
Chicago, Ill.

WHEN the Stone & Webster engineers were planning and building one of the "Manhattan Engineer District" projects, which later was revealed to be concerned with the development of atomic bombs, one of their pressing problems was the mechanical and safe handling of heavy loads and spotting them during processing within a fraction of an inch on a predetermined layout. They turned to materials handling engineers of the Automatic Transportation Co. and solved the problem with its "transporter," the so-called "daddy" of the new motorized electric hand-truck industry.

So successful was the experiment that more than 200 of these "transporters" were employed in speeding the production of the atomic bombs which undoubtedly hastened the conclusion of the war with Japan.

We have been asked what features there are about this motorized hand-truck that helped solve the ticklish production problem of handling the heavy materials from the atomic bomb. Well, no different than those which the armed forces and their suppliers also found extremely valuable to employ throughout the war. The navy, the first to use the "transporter" in large quantities, dubbed it "the little giant" because it quickly and safely moved tons of material on 24-hour schedules. Except for a few minutes time out to change the battery every 8 to 10 hours, these motorized electric handtrucks

have been in continuous operation in many plants for four years. At this writing more than 7,000 are in use in many industries.

For the atomic bomb project, the "transporter" was used mainly as a tractor to spot loaded trailers within a fraction of an inch of a designated mark. An arrow, placed at the front of the "transporter," helps the operator achieve this purpose. The precision and safe control of any forward or reverse movement of the truck were important factors in its selection. The body was painted white to facilitate checking its surface after the daily washing-down it receives when in operation. The usual color of all Automatic electric trucks is orange.

It must be pointed out here that the "transporter" is not a so-called "war-baby." It was developed prior to the outbreak of the war. But the exacting needs of a lightweight, motorized handtruck to handle heavy loads quickly and safely to satisfy the mammoth requirements of the armed forces greatly increased the demand. Its production was doubled, then quadrupled, and finally reached eight times its initial quantity output when V-J Day was announced.

In the meantime, the advertising and sales departments brought the "transporter" to the attention of civilian industries. The result is a large backlog of orders that insures the operation of the company's plant with its full war-expanded working force employed on two shifts.

Non-Scheduled Air Cargo

(Continued from page 50)

contract carrying with common carrier traffic. The growth of air cargo transportation may, in fact, be greatly restricted unless this duality of operation is permitted. It is recognized that the potential of undue discrimination undoubtedly exists in dual operating rights, but if future would-be contract operators are accorded common carrier rights in order to exist, the existing common carriers must also be given the right to meet the competition by engaging in contract carrying.

5. There should be territorial restrictions on the right to operate over irregular routes. In the motor carrier field, certificates and permits to engage in irregular route operations have always specified the area of operation in lieu of route specification. In air transportation, regardless of regulation, it is probable that economics will erect barriers to efforts to go everywhere, or anywhere, and at any time. The difficulty of controlling such far-flung operations, of supervising those who perform them; of securing return loads and keeping down empty mileage, as well as other operating difficulties will doubtless serve to impose restrictions upon such grandiose schemes.

Public Interest

From the standpoint of public interest, there are two vital objections to unlimited air operating rights. These are: (1) The tendency to employ such rights to invade the territories served by other certificated carriers, and especially regular route carriers who must maintain regular service. (2) The tendency of such operations to skim the cream from the traffic in various regions without assuming any of the responsibility for providing regular, dependable, and always available service. The motor carrier field offers abundant examples of irregular route operations becoming so frequent and continuous as to amount to regular route ser-

(Continued on page 55)

"Last Down for the Army, and 6,000 Yards to Go ... UP OVER THE HUMP"

Based on a true story taken from the war record of the Curtiss Commandos



My First Flight from Casablanca to
Khabras, India, taught me a lot of "plane
facts." I was heading for the 19,000-foot
hump to entertain our G. I.'s in China.
Our trip in the Curtiss Commando . . .
and the stories I heard about the
Commando's amazing ruggedness . . .
really sold me! Remember back in '43
when the Burma Road was cut off? Only
a trickle of supplies was reaching the
Chinese Army. Then the Air Transport
Command rolled into action. Overnight

they built a new "lifeline" to China,
flying loads as high as 50,000 pounds
gross weight in Curtiss Commandos,
through monsoon rains, raging snow-
storms, 100-mile-an-hour winds and at-
tacking Zeros. Soon more supplies were
flowing into China than ever went over
the Burma Road. The odds shifted . . .
and you know the rest. *The Army held out . . .* thanks to the new Burma
Road of the Air . . . today's great
airliner . . . the Curtiss Commando!"

"THAT'S WHY
I WANT TO RIDE
THE AIRLINES THAT WILL

Fly Commando!

PAT O'BRIEN . . . SOON TO BE SEEN IN "THE
PASSIONATE GHOST" • AN RKO PICTURE



Consider Your Transportation Costs.
Actually, when you ship by air, you increase
costs in several important ways. Losses in
dilution and markdowns . . . storage space
required . . . assets frozen in transit . . . are
reduced with fast and frequent Com-
mando delivery of air-fresh merchandise.

When An Emergency Arises, you'll want that
rush shipment to be sure to Fly Commando! For
the Commando requires less time at flight stops
for servicing and loading. For instance, improved
fuel tank filler necks take gasoline as fast as
fueling systems can pump it. So, over-all speed
is greater than ever for goods that Fly Commando!



Added Attraction. The luxurious comfort and
deluxe service aboard a Curtiss Commando are new
to air travel. But they're really just added attractions.
The huge transport is designed primarily for
speed . . . the chief function of flying. And it offers
far greater speed of delivery, for both passengers
and cargo, than any of today's airline transports.

THE CURTISS
Commando

Yesterday's Great Lifeliner
Today's Great Airliner

Curtiss



Wright

FIRST IN FLIGHT

CLASS OF SERVICE

Superior in every respect, New winch design coupled with traditional Gar Wood quality will bring to all winch users entirely new operating advantages.

GAR WOOD WINCH AND CABLEGRAM

SYMBOLS

- + Added mechanical features
- X give Multiple operating advantages.
- = Equal factors of safety in all parts insure balanced strength and longer winch life.

WINCH USERS EVERYWHERE.

GAR WOOD'S DRAMATIC STORY ABOUT THE DEVELOPMENT OF A SUPER-WINCH FOR MILITARY USE WILL BE RELEASED NEXT MONTH. THE IMPROVEMENTS ARE SO RADICAL - THE EFFICIENCY SO REMARKABLE THAT THESE NEW, WAR PROVED, WINCHES VIRTUALLY OBSOLETE ANY WINCH UNIT EVER OFFERED FOR CIVILIAN USE PRIOR TO 1946...THIS IS AN ADVANCE NOTICE OF GAR WOOD'S RELEASE FOR CIVILIAN PURCHASE, THE WORLD'S BEST WINCHES.

THANX FOR WAITIN'

GAR WOOD INDUSTRIES, INC.

DETROIT, MICHIGAN

Non-Scheduled Air Cargo

(Continued from page 52)

vice without certificate authorization therefor.

From this summary it is apparent that the airlines have rested very heavily upon motor carrier experience in formulating their attitudes toward various aspects of the problem under discussion. They are perfectly justified in doing this, and it is fortunate that we have a field of transportation like the motor carrier field, with so many of its economic problems akin to those of air transportation, from which lessons may be drawn.

Of course, no two forms of transportation, and no two operating companies within the same form, have exactly the same economic characteristics. Each has certain inherent advantages and disadvantages, both in the service it renders and in the operations necessary to the rendition of that service. For example, as Dr. Sorrell pointed out in his statement before the CAB:

"The types of equipment they employ differ in original cost, service capacity, longevity; they consume different types of fuel purchased at different costs; they utilize greatly divergent amounts of energy to consummate a given amount of transportation service; the depreciation rates on their equipment are not the same; they do not have to provide the same amounts of fixed (i.e., non-mobile) equipment and plant; they obtain greatly differing amounts of utilization per annum from their equipment; terminal costs are not the same for each; the length of the hauls they enjoy, as well as the prices they receive for the same passenger-mile or ton-mile units of service differ."

Despite the patent differences just mentioned, there are a number of important and basic aspects of transportation which have meaning for the problem of organization through specialization of service. These are:

1. The area of route to be developed must have sufficient traffic potential so that, taken in conjunction with feasible rates, the enterprise will secure enough revenues to meet expenses and provide some

Largest Land Plane



Capable of circling the globe with only two stops, the Douglas C-74 Globemaster was test flown recently at Long Beach, Cal. The new sky giant embodies all the newest developments of aerodynamics, including thermal de-icing, laminar flow wings, reversible pitch propellers, full span flaps, walkways in wings for servicing engines in flight, and built in freight elevator and traveling cranes to facilitate cargo handling. The Globemaster weighs 155,000 lb., has a speed of over 300 m.p.h., and can carry a useful load of 30 tons.

return on the investment. There also must be opportunity to expand as needs require. This area may be measured by various statistical units such as revenue per mile of route, per head of population, or per unit of land area.

2. How much investment per mile of route or per dollar of revenue is needed to produce the necessary returns?

3. How much must be expended per dollar of revenue to perform the service? What is the operating ratio?

Future Development

Dr. Sorrell points out, in justification of his reliance on motor carrier experience as a guide for future air cargo developments, that if air and motor transportation are similar in these basic considerations, it will follow that experience in the organization of highway transportation should be of some value as a guide to the future development of air transportation. In order to determine the degree of comparability, he presented Table 1, from which it may be seen that while air transportation, as developed to date, does not correspond to highway transportation exactly in the basic aspects of organization, it is sufficiently similar to justify recourse to highway experience as a guide to the future. There is no doubt that air development

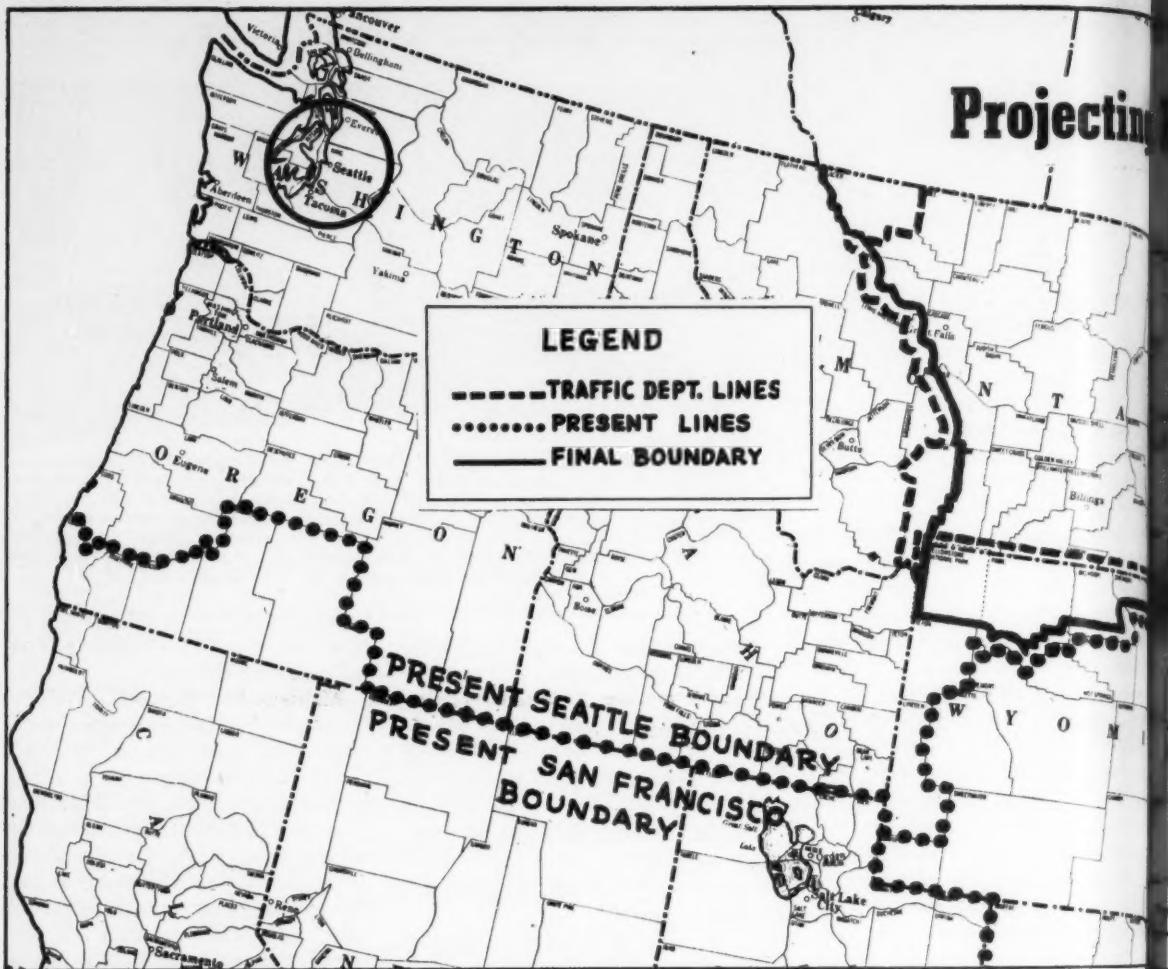
more nearly parallels highway than railroad expansion.

Airlines, like highway carriers, "turn over" their investments more often than once a year, whereas railroads do so only once in three to four years. Also, it will be seen from the table that air transport's revenues per mile of route correspond fairly well with those of the motor bus industry; its operating ratio approximates that of the trucking industry, and is far above that prevailing on the railroads. Its investment per mile of line is also much closer to that of the highway carriers than to that of the railroads.

It would, however, be a mistake to pattern the regulation of non-scheduled and contract air transportation too closely upon the model offered by the motor carriers. Motor carrier experience certainly will not be duplicated exactly, and surely the regulations promulgated under the Motor Transportation Act of 1935 by the Interstate Commerce Commission should not be adopted as such. Dr. Sorrell, however, has made a very important contribution on behalf of the scheduled air carriers to this perplexing problem.

It will be seen that while scheduled airlines believe that their vested rights should be protected against unwarranted encroachment, they are not trying to make air transportation a monopoly.

Projecting



(Continued from page 26)
satisfaction mean increased sales and profits.

Whether the projected distribution system is predicated on public warehouse operations or on a company operated branch arrangement, the research principles are the same. In our case, the nature of our business and company policy require that distribution be entirely within our own control and, hence, we use a system of company operated branches.

Mapping Boundaries

When top management desires to add a new branch, the sales department will select a city within a market area which currently has a large sales volume and, even more important, potentialities which may be developed by better customer servicing at a reasonable cost. Whether such a desire can be

realized is a question of fact to be proved by research studies.

A large black and white map similar to the section reproduced with this article and showing important cities and county lines is secured. On this map is traced the distribution boundaries of the existing branches in the market area under study. The traffic department will now begin to check freight tariffs and compile freight rates from existing branch locations and from the contemplated branch locations to cities and towns in the market area. This compilation usually is made by states and counties. The rate breaking points, subsequently, are determined and indicated by means of boundary lines on the map.

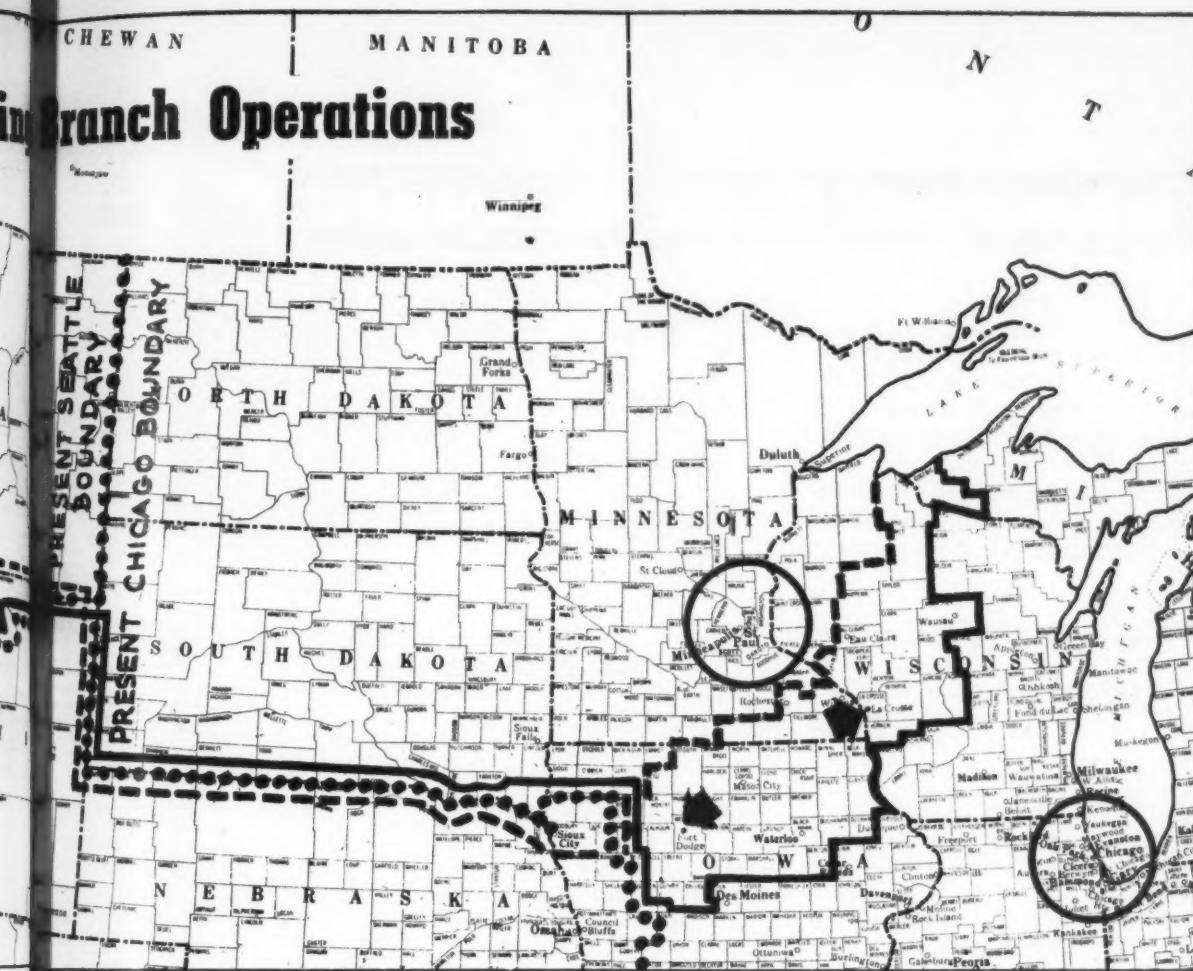
These rate breaking points are arrived at by adding the carload or truckload rate into respective distribution locations and the l. c. l. rates. It is essential that traffic management be well equipped and that it has the ability to develop for itself the correct freight rates.

or l. & l. rate beyond to a particular city. It will be noted that an area thus delineated will take the form of an elongated circle with the projected distribution center nearest the source of supply. This peculiarity is readily explained by the fact that the economy of distribution is in a forward direction and, hence, the area of back haul relatively is small.

Type of Product

It must be borne in mind, of course, that the physical appearance and the size of the area delineated on the map will vary with the character of the products and the spread which may exist between the carload and the l. c. l. rates. It is essential that traffic management be well equipped and that it has the ability to develop for itself the correct freight rates. Dependence on outside sources

branch Operations



Copyright American Map Co. Inc.

usually is unsatisfactory because of the lack of specialized experience in the tariffs and freight rates applicable to particular products.

Sales Coordination

When the traffic department has concluded its studies and has mapped its distribution lines based on freight rates, the matter goes to the sales department for its consideration. In submitting the problem to sales, the traffic department must include a statement of all freight rates and services applicable to the marginal territory. The sales department will then delineate on the map its ideas relative to boundary line placement. Its decisions will be founded on sales statistics, sales experience, estimated potential sales volume, etc. The sales department's lines may very well extend beyond those of the traffic department inasmuch

as the element of delivery service is better from the contemplated location than from the former distribution points and it must be borne in mind that the matter of delivery service to customers is a very important sales factor.

The map with its conflicting sales and traffic department boundary lines will be submitted next to top management for final consideration. This submission will include traffic department figures on shipping costs to the marginal territory and a sales department analysis of sales by counties together with a statement relative to delivery service from the respective points of distribution. The branch operations department will supply information on the average cost of branch rent, operations, taxes, etc., based on past experience and statistics.

Top management must be pro-

vided also with accurate information relative to the number of square feet required for warehousing, the cost of billing customer invoices, personnel requirements for office, warehouse, etc. Much of the above data is compiled in respect to gross sales units for purposes of clarification. Complete and exact information is thus made available to management showing costs of distributing merchandise in the territory under study and costs of shipping to points beyond the traffic department's lines.

As Illustration

By way of illustration, reference to the map will reveal that Fort Dodge, Ia., and La Crosse, Wis., are both beyond the traffic department's lines. From Brooklyn, N. Y., to Fort Dodge the combination freight rate is \$1.57 per 100 lb. via

(Continued on page 74)

International Traffic Management

The international traffic manager must concern himself with the pyramiding effect of his actions throughout an area inhabited by two billion people, and comprising about one hundred national units of commercial importance.

By GEORGE F. BAUER

International Consultant



IT is the function of the traffic manager to see that raw materials for a product are moved from source of supply to point of fabrication, and that the finished product is moved from point of fabrication to the ultimate user.

In world trade, the traffic manager assumes these responsibilities for an area inhabited by two billion people, and comprising about 100 national units of commercial importance.

The traffic manager functioning in world trade cannot limit himself to the usual methods of transportation. He must be familiar with inter-nation services offered by railways; transport facilities with non-contiguous territories of the United States; ocean shipping; motor vehicle facilities abroad; and international air cargo transportation.

There is one very important hazard to which the international traffic manager is exposed. Failure by him to recognize global traffic developments of all kinds may tend to make the goods of his firm less competitive in certain markets. Firms with alert traffic managers will be able to effect considerable savings as a re-

sult of new or changed shipping methods.

There is another factor with which the international traffic manager must concern himself to a far greater extent than his domestic prototype. This factor is the pyramiding effect of his actions.

Pyramid Effect

Failure to discourage obsolete packing methods may mean not only the increased cost of providing a container, but increased duty imposed on it by a foreign government as well. In some countries, a local sales tax is levied on the cost of the container, increased by the amount of customs duty.

There have been some instances where improper packing, because of pyramided effects caused by levies in foreign trade, has resulted in expenditures of up to 13 percent of the value of the goods contained in the shipping carton.

In world trade, weight of the container is a factor to consider, especially if shipment is to a country like Venezuela, where customs duties are levied on gross,

rather than on net weight of goods.

In international commerce, it is not a saving in freight charges at original source that counts alone. Here, too, there is a pyramiding effect. Many nations apply ad valorem duties on the value of goods landed at their ports of entry. These duties are levied both on the cost of the container and the cost of transportation between country of origin and country of destination. If sales taxes are applicable locally, there is still further pyramiding of costs.

Certain manufacturing developments may require interpretation by the traffic manager who is anxious to help the sale of his company's products abroad.

As the Duco process of painting and welding were introduced in the manufacture of automobiles, certain effects were inevitable in the conduct of overseas business. Utilization of these technical developments in the furtherance of export business, however, hinged more on the traffic manager, and less on the production executive.

A new opportunity to effect savings in pyramided transportation
(Continued on page 137)

Failure to notify your insurance company when goods are ordered stopped en route may cause serious complications. Economical and adequate protection is easily obtainable through the use of the proper policy.

Insuring Goods Stopped In Transit

By CHARLES F. RUPPRECHT

Associate Editor
The Spectator, Property Insurance Review

In the October number, I discussed the insurance of merchandise from point of shipment to its final destination, reserving as more appropriate to this month's issue, which is devoted largely to traffic management's role in distribution, a discussion of the ramifying problems arising out of goods "stopped in transit."

The insuring clause of the Shipper's Interest Transportation Floater Policy states: "This insurance attaches from the time the goods leave factory, store or warehouse at initial point of shipment, and cover thereafter continuously, in due course of transportation, until same are delivered at store or warehouse at destination."

Now these words "in due course of transportation" form the crux of the whole subject of this article. The literal meaning of the term, to my knowledge, never has been adjudicated in the courts with respect to insurance. The common sense definition of the term (and insurance contracts are based upon common sense interpretation in spite of the necessarily carefully chosen but sometimes confusing words used in policies) would be "anything that is in continuous motion by conveyances" from one defined point (starting) to another defined point (destination).

If anything or anybody interrupts this "continuous course" the

insured must carefully consider the effect upon the intent of the insurance policy. If, for instance, the shipper transports the merchandise to a point where it will be intermingled with the merchandise of others to make up a full carload, and thereby reduced his shipping costs, the policy, without question, would cover the merchandise while it was taken out of "continuous motion of transportation" and fully protect it while it remained "stationary" in a freight depot or warehouse.

Policy Requirements

Again, if transit of merchandise is stopped or delayed by circumstances "outside the control of the insured," such as fire, flood, overturn, or strike, even though no damage actually occurred to the insured merchandise, such stoppage is covered by the policy. Such stoppage may require the removal of the insured merchandise to some type of warehouse and the goods may remain there as long as 20 days (such as in the case of floods) and no change in the insured's program is required.

It is, however, a different matter if the owner of the insured merchandise orders a stoppage of goods in transit, such as for marketing purposes; then notification must be made to the insurance company through the shipper's

broker or the company's agent. The reason for this action revolves around the question of the rate and premium for the insurance. As I pointed out in my previous article, the rate for shipper's interest insurance is low, ranging between five cents per \$100 of insurance to a high of 25c. In the example worked out, the rate was \$.056 per \$100 or \$.56 and a fraction per \$1000. These rates cover the goods against nearly every hazard you can think of including fire, lightning, collision, wind, riot and strike, theft, smoke, aircraft and motor vehicle damage, water, flood and many others. When you order a stoppage in transit your merchandise will be placed in a warehouse where the lowest fire rate obtainable is quoted at 10c. per \$100. To that rate the company would add specific rate charges for each of the other hazards enumerated which would produce an absolute minimum of 50c. per \$100 insurance.

The average rate applying to the average location will approximate more nearly the figure, \$1.50 per \$100 insurance. You can figure out the reason for this increase in rate by considering how much more likely a stationary building is to suffer these damages than a moving conveyance such as a freight car, airplane, truck or ship. It's a mathematical formula.

(Continued on page 137)

Metal of Motion

(Continued from page 45)

ling problems would be simplified. It has been suggested that magnesium be used for the sections of l.c.l. container cars.

A promising field for magnesium is that of materials handling equipment. In the opinion of Howard Perkins of Brooks & Perkins, Detroit metallurgical organization, the aircraft, materials handling equipment, railroad, and motor truck industries will absorb the bulk of future magnesium production in the order given.

Weight Reduction

"Magnesium is a natural for handling equipment," Mr. Perkins told DISTRIBUTION AGE. "We are filling a contract for hand trucks for a beverage manufacturer now. These trucks are used to wheel bottles from delivery trailers to stores. The steel truck formerly used for this purpose weighed 27 lb. The new magnesium alloy truck weighs 11 lb.

"The weight economies we have effected on manual handling devices are possible to an even greater extent on mechanized equipment. Consider the case of equipment

"Canned" War Surplus

The "canning" in aluminum of valuable war surplus materials, running all the way from heavy machine tools to delicate instruments and electrical apparatus, has been announced recently as one of the peacetime projects of the Glenn L. Martin Co.

The development of ingenious aluminum "barriers," some of which "breathe" through a drying agent; others of which are hermetically sealed, has come about through experimental army contracts for the canning of guns. It has been determined that by such methods, all sorts of manufactured articles and materials can be stored in the open.

where weight is not needed for compensatory balance. All the outside operating parts, and the power plant itself could be made lighter through the use of this new metal."

The magnesium makers feel that they have created a powerful rifle, and aimed it at the heart of high distribution costs . . . the high cost of transportation. They feel that if their claims for magnesium are substantiated, the traffic manager, in the interests of the shipper, will "pull the trigger" by recommending adoption of the metal of motion to manufacturers of carriers, containers, and materials handling equipment.

Handling + Traffic

(Continued from page 49)

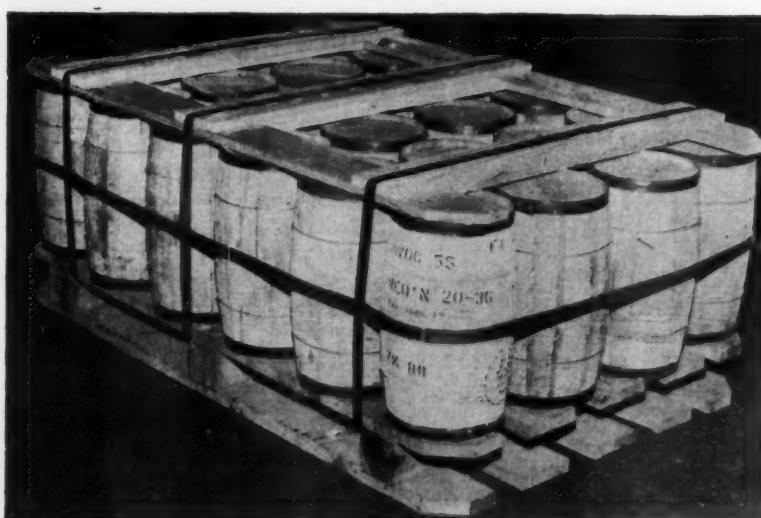
of materials handling equipment. Materials handling equipment will reduce accident hazards. Materials handling equipment will speed up the loading and unloading of cans. Proper use of materials handling equipment assures better storage methods by making it practicable to utilize storage space to better advantage. Materials handling equipment can help reduce insurance costs. These are only a few of the many advantages that can be obtained by proper coordination through intelligent packing and handling.

Traffic managers in the past were not specialists. Even today, their opportunities often are not fully recognized. But in worldwide distribution which is about to take place it will be necessary to take advantage of every possible saving in time and space. Traffic managers are going to be called upon to figure out when to use air cargo, and in the use of air cargo it is important to have the proper package so as to make the shipment as light as possible, and yet sufficiently strong to withstand pressures and strains and the possibility of having it transferred to other types of carriers for emergency handling.

Broader Interest Needed

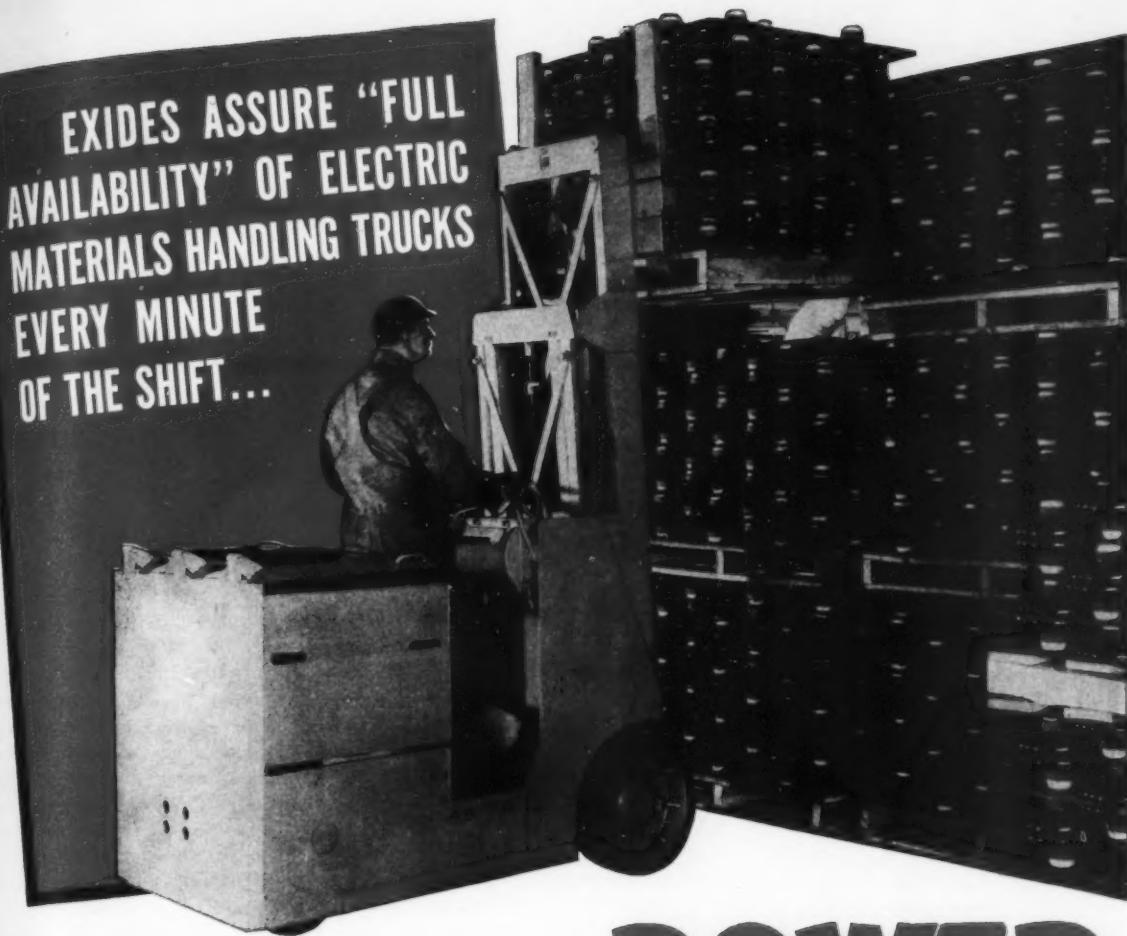
Traffic managers will have to have a knowledge of handling facilities available at airports so that their containers and materials can be properly handled and stowed for air shipment. The changes that have taken place in the stowage of straight hold vessels, in the shipment of palletized unit loads overseas, also will affect packing methods and handling costs. The traffic specialist should be in a position to bring to bear all of these important facts in the pleading of rate cases on all types of transportation.

As stated in the beginning of this article, the traffic manager should be a distribution specialist, aware of all the factors involved, which, if properly integrated, can help make overall distribution more efficient and economical.



Nearly all types of construction materials lend themselves to palletization and mechanized handling. Here 24 heavy kegs of nails comprise a compact unit load.

**EXIDES ASSURE "FULL
AVAILABILITY" OF ELECTRIC
MATERIALS HANDLING TRUCKS
EVERY MINUTE
OF THE SHIFT...**



When electric industrial trucks, powered by Exide-Ironclad Batteries do the lifting, hauling and stacking of materials, you can be certain of *full shift availability* hour after hour, day after day. There is no down time for adjustments, repairs or other attention.

Exide-Ironclad Batteries have the *high power ability* needed to meet the high-kilowatt demands encountered in "stop and go" materials handling. They provide *high maintained voltage* throughout discharge, thus assuring a uniform rate of operations. And the *high capacity* of Exides keeps electric industrial trucks on the job during every working minute of the shift. You can always count on powerful, rugged Exides for dependability, long-life, safety and ease of maintenance. *These are the factors which add up to lower handling costs per ton.*

Write us for a **FREE** copy of the bulletin "Unit Loads," prepared by The Electric Industrial Truck Association. It tells how to cut handling costs up to 50% . . . covers latest developments in materials handling . . . and includes actual case histories.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

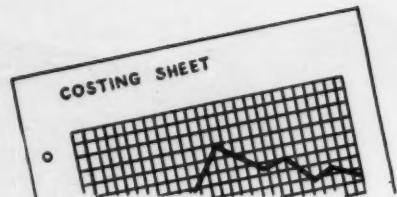
Exide Batteries of Canada, Limited, Toronto

POWER

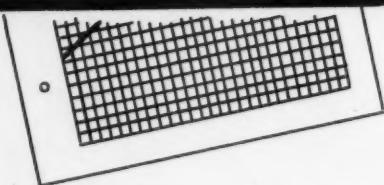


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Costing M



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



By FRED MERISH

Special Correspondent

In prior articles on costing distribution we discussed the subject from the standpoint of its two basic classifications, internal or controllable costs, and external or uncontrollable costs, the former are paid by the manufacturer or distributor, the latter are incurred and paid by another link in the distributive chain. External costs, as we suggested, should be handled by some sort of an institute of distribution, as proposed by this magazine. Such an organization would have to be provided with facilities for the study of distribution costs on a national basis, so that the various elements could be coordinated from raw materials to consumer.

Cost Groups

We also grouped internal costs into two sub-divisions: 1. handling, 2. marketing, the former concerned with the movement of goods, the latter with the promotional efforts required to induce consumers to buy. To cost handling, the figures had to be broken down into the various operational routines or processes and then a unit cost arrived at per product. This was discussed in a previous article.

In this article, we cover the other division of internal costs, marketing. These costs are recorded in a similar manner, according to functions or operations, and the number

of units marketed divided into the total cost to get the unit cost of marketing.

Marketing has been costed after a fashion by various agencies, trade associations, research organizations, and others. Sometimes, management has compiled figures, but routines differ, and the hit-or-miss work done to date is about as intelligible as Chinese to an Eskimo. The big reason is that marketing cost is a more complicated procedure than production costing or even the costing of handling.

Production is more or less mechanical and under the thumb of management, hence, standards can be compiled, and cost control made more effective. In marketing costs psychological factors play a more important part: the consumer must be induced to buy through advertising and selling appeals, and it isn't so easy to determine results from these media. Management can determine with exactitude how much production a machine turns out and what that production costs but getting a line on the sales results of an advertising or selling campaign, or determining just how much of its cost is chargeable to a particular product where a number of products are advertised and sold through salesmen, is not as easy to figure.

Where a concern makes one product, the cost work is relatively easy,

all marketing cost is charged to that product. But a majority of companies produce from two to more than one hundred different products, some of them marketed through different channels. This requires a lot of mathematical gymnastics in order to compute the marketing cost per product.

General Breakdown

Marketing costs fall into these general heads: 1. Advertising; 2. Selling; 3. Financing; 4. Administration.

Under each of these heads may be many accounts, depending upon the business set-up. Advertising may cover direct-mail solicitation, samples, newspaper space, commercial movies shown in churches and clubs, demonstrations, etc. Selling may cover airplane travel, salesmen's car expense, salesmen salaries, expenses of sales office, sales manager's salary, etc. Financing may cover bond issues, bank loans, mortgages, consumer credit, collections, claims, insurance, etc. Administration concerns all commercial expense not chargeable under the other three heads and these items would vary from rent to depreciation, usually expenses found under commercial overhead. All of the accounts listed under these four general heads are recorded by most managements, but they are not classified so that marketing

Marketing



Marketing has been costed after a fashion by various agencies, trade associations, research organizations and others. Sometimes management has compiled figures, but routines differ, and the hit-or-miss work done to date is about as intelligible as Chinese to an Eskimo.

cost per product is readily determined.

Auxiliary records classifying these costs as shown could be set up without disturbing existing financial records and these additional recordings could provide valuable data on marketing costs. Managements use auxiliary records for other phases of operation, such as depreciation, collections and production costing, so this suggestion is not a departure from the norm. The absence of distribution costing records in most organizations is a business anomaly that needs correction.

Unit Costs

Marketing expense should be broken down to unit costs, similar to handling costs. Where research has been done on this subject, the unit cost has been the yardstick, even for wholesalers and retailers. We believe that this measurement should be adopted by all when costing distribution, otherwise, there will be no uniformity and analysis will be so difficult as to be virtually impossible. Without intelligent analysis of distribution costs, the work is hardly worth while.

Unit costing requires that management record the units sold per product and the marketing costs chargeable to each product. Where more than one product is marketed, this makes it necessary to pro-rate

marketing costs in many cases. For example, if a salesman sells 10 products, it isn't always easy to determine the exact selling cost per product.

Salesmen are not like factory workers, under thumb all the time, so that their work can be timed exactly. Moreover, salesmen, intent on selling, are not likely to record the time spent discussing each product or the mileage consumed while selling each product and this would be the only way to get a figure mathematically accurate. For this reason, there is always more or less estimating necessary in costing marketing, nevertheless, an intelligent approach to the subject will provide valuable figures upon which to effect economies in distribution.

There are three ways to cost marketing expense per product:

1. Charge direct if you can earmark the expense as belonging to one product exclusively.

2. Split the expense up equally among all products if you know that all products get equal benefit.

3. Pro-rate on the basis of sales volume if you cannot determine just what portion of a marketing expense should be charged to each product. This is where the estimating comes in.

Always charge directly those expenses that can be earmarked for a product or that may be split up on an equitable percentage basis.

Expenses that cannot be identified as chargeable to one or more products but which are applicable to all, should be pro-rated on the basis of sales volume.

Advertising

For example, if \$1,000 is spent advertising Product A, then \$1,000 is charged to Product A. If Products A, B, C, D are given equal space in an advertising campaign, then one-quarter of its cost could be charged to each product. If an advertising campaign covered all products and it was impossible to determine just how much space or time was given to each product, as is often the case, then this expense should be pro-rated to each product on the basis of sales volume.

Other marketing costs may be even more difficult to charge directly. Suppose a salesman sold four products on the road. This expense could be divided into four equal parts and charged accordingly to each product but there is no way of determining how much time a salesman spends on each product without keeping excessive cost records. A salesman may spend half his time on a big seller just because it is a big seller, hence, charging the big seller with only one-quarter of his time would be unfair. This is why pro-rating indirect costs or expenses on a sales volume basis is the best bet in the

absence of an exact mathematical formula.

Say a concern sells four products in the following volumes:

Product A.....	\$10,000	10%
Product B.....	20,000	20
Product C.....	30,000	30
Product D.....	40,000	40
Totals	\$100,000	100%

Suppose this concern has a marketing expense of \$25,000, of which \$10,000 can be charged directly to these products because these costs were incurred exclusively for one or the other of these products. That leaves \$15,000 that cannot be charged directly because these costs were incurred for the promotion of all products. This \$15,000 is prorated to each product on the basis of sales volume. For example, Product A's volume was 10 percent of the total volume, so Product A is charged with 10 percent of the indirect cost, to wit:

	Total Sales	Indirect Cost	%
Product A	\$10,000	10	\$1,500 10
Product B	20,000	20	3,000 20
Product C	30,000	30	4,500 30
Product D	40,000	40	6,000 40
Totals	\$100,000	100	\$15,000 100

If advertising and selling costs were all there were to marketing costs, costing distribution would be relatively simple. Financial and administrative costs complicate the problem of allocating costs to each product. How much of administrative, interest on loans, loss on bad accounts, general office expense,

etc., should be charged to each product is a troublesome factor. Usually, this is taken care of on the basis of sales volume, although in some instances, distribution cost accountants may find it advisable to allocate these costs in proportion to services rendered, the number of items handled, the number of invoices compared with total invoices, etc. Experience will point the way to the most practical procedure.

In some organizations, 50 percent of the selling expense may be charged directly. Sometimes, the cost of marketing covers the cost of operating warehouses and freight to customers. Packing and shipping costs usually are charged to sales and not to handling. Organizations with branch offices should list those costs under marketing but keep the accounts separate.

To Analyze Results

Unit costs are kept on a quota basis, so much for advertising, selling, financial and administrative per product and the total marketing cost per product. This makes it easier to analyze results and to effect economies. For example, if a cigarette manufacturer knows that his advertising cost per pack of cigarettes is 1/16c., he can watch this figure from period to period, note the trend and proceed intelligently to apply correctives.

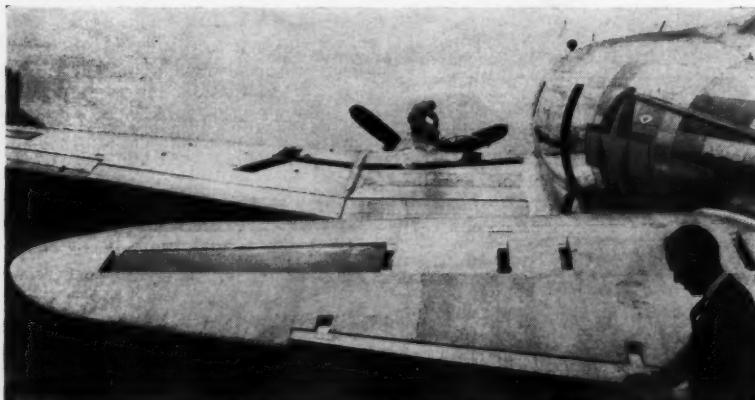
Volume is part of the picture. As volume increases, distribution costs decrease, as volume decreases, distribution costs increase, but not in the same proportion. This is because certain costs are fixed and cannot be cut regardless of volume. Management must maintain a certain volume to earn a certain profit. The attainment of this objective is largely a matter of budgeting operations, in other words, by estimating in advance the cost of operations and the sales volume needed to earn the desired profit, and by then striving to reach that volume. Accountants are familiar with budgeting so we shall not go into it here except to say that budgeting is essential to minimum distribution costs and all management should budget. Too many do not.

So much for internal costing, the handling and marketing costs incurred by a management. When a product leaves management's control, distribution cost continues but these costs are outside the jurisdiction of the shipper or seller. The next link in the distributive chain takes over the costing of operations.

The only management without external costs would be one that produces the raw materials, and then processes and distributes its product direct to users or consumers. For management, depending upon other distributive agencies to carry the product to the consumers, there is an overall distribution cost paid by the consumer that can be computed in toto by those outside distributors incurring the costs. Thus, overall distribution cost comprises internal and external charges compiled by the various links in the chain, independently of each other. Nevertheless, to get the overall cost of distribution to the consumer, all these costs must be added together.

Inasmuch as the various links in the distributive chain cost their operations independently and do not permit outside links to supervise their costs, some organization for collating, coordinating and analyzing the figures must be brought into the picture, an organization operating on a national basis to which all management in the distributive chain should send their costs for study and comparison.

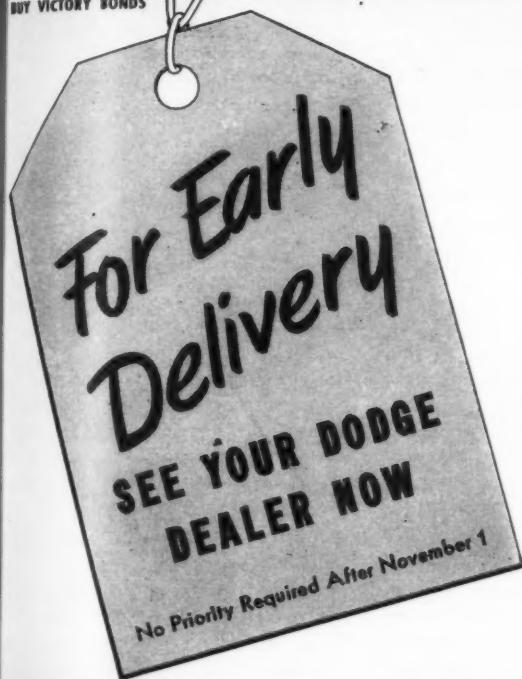
Maximum Cargo Plane Loading



This simple "V-Tab" control surface, indicated by Curtiss-Wright test pilot Harvey Gray, will simplify operation of air cargo transport planes. Operating automatically, it eliminates the necessity of shifting cargo to keep the plane in balance as the freight load is increased or reduced at various stops.

1/2, 1, 1½ AND 2-TON CAPACITIES NOW READY . . . OTHERS ON THE WAY!

BUY VICTORY BONDS



YOU'LL like the way these new and improved trucks cut *your* hauling costs. You'll like the way Dodge engineers have designed them *to fit* your hauling requirements. You'll find that these Job-Rated trucks have exactly the *right* engine, the *right* size frame, transmission, clutch, rear axle and every other unit to give *maximum* performance at *lowest* cost! To save money, invest your money in new Dodge Job-Rated trucks!

DODGE DIVISION of CHRYSLER CORPORATION

DODGE
Job-Rated
TRUCKS

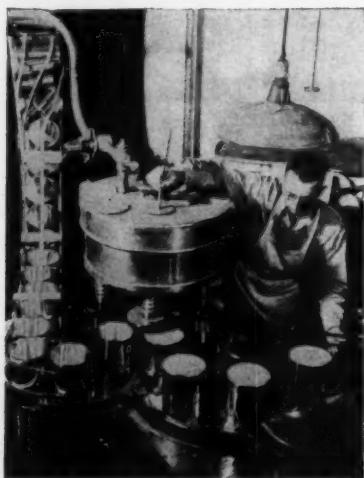
LISTEN TO THE MUSIC OF ANDRE KOSTELANETZ WITH GUEST STARS, THURSDAYS, CBS, 9 P.M., E.T.



Because of the dependable and economical service received from Dodge trucks throughout the war, more and more moving and storage firms are placing orders for early deliveries of new Dodge Job-Rated trucks.



California Walnut Assn. stamps trademark on each walnut prior to packing.



Concentrated orange juice is poured into gallon cans at this co-op plant.

This air conditioned basement of a poultry co-op is equipped with roller conveyors to facilitate handling of containers.

The HOW and W

By H. H. SLAWSON

THE proponent of competitive enterprise, should he move among the farm co-operative associations, might be surprised to discover how much alike many functional phases of the two distribution systems are. Cooperative endeavor is as "human" as private business.

Mass marketing and production call for highly skilled technicians, and co-op organizations have the best. Manufacturing at low cost can be carried on only with the most modern machinery, and co-op plants make use of the latest. To cut costs and increase efficiency in the innumerable warehouses required for cooperative distribution, materials handling equipment of the most advanced type is being adopted.

Sales managers competent to handle nation-wide distribution are essential to successful cooperative effort, and scientific traffic management is being recognized as another "must." Competition for markets requires attractive packaging. Advertising has become an ally of the co-ops, while the resources of science are in demand to maintain quality, im-

prove the product, and develop new uses for it.

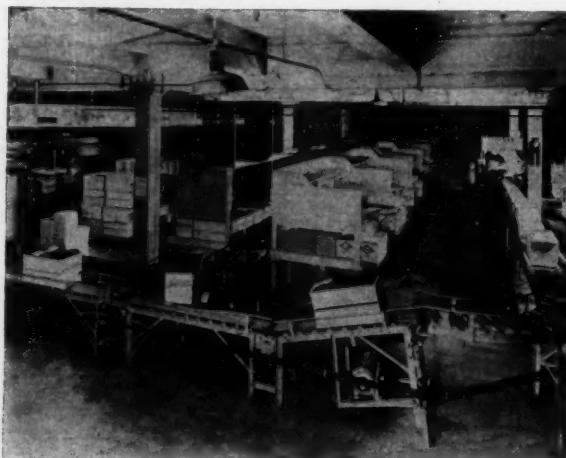
Wartime conditions affected the co-ops. Stimulated by the "Food For Freedom" campaign to meet requirements of the armed forces, lend-lease, and the home front, output of co-op fruit and vegetable processing facilities have been unprecedented.

Motorized Industry

Manpower shortages were met by the co-ops by shifting help from one job to another; by working longer hours, and by employing women, part time workers, Mexicans and other foreign labor. And, too, in the traditional spirit of rural neighborliness, by organizing service crews to shift as needed from one emergency job to another.

In an industry so completely motorized as farming, transportation difficulties were unusually onerous, and many ingenious plans were adopted by the co-ops to conserve trucks, tires and gasoline. Hauling of full loads, pooling of loads, reorganization of pickup and delivery routes, use of

Fork trucks and pallets add to the efficiency of materials handling operations at the Tri-Valley Packing Cooperative.



WHY of the CO-OPS

No. 4 - The Co-ops Are Human

horses and even tractors to draw wagons, were among the expedients employed.

Emphasized by the fact that 80,000,000 wooden containers bring fresh fruits and vegetables into New York alone every year, the problem of container salvage and substitution has heavily affected the co-op world. In some cases this has forced a shift to new forms of food preservation; from canning to dehydration, for example. This has brought about the development of new processes, installation of new types of equipment, adaptation of old mechanical facilities, and exploration of new outlets for the commodity.

Wartime demands accentuated frozen food processing, and cooperatives have not been slow to respond to opportunities for serving members in this direction. Last year the Illinois Cooperative Locker Service operated 65 locker plants, had seven more under construction at the start of 1945 and 8 others in the process of organization. Serious study is being made of proposals for the establishment of centrally located

EDITOR'S NOTE: This is the fourth of six articles on the farm cooperative associations and their relation to and effect upon current practices in distribution. The first article explained why the farm co-ops are big business. The second examined the effect of cooperative methods upon distribution costs. The third discussed the purchasing activities of the co-ops. Articles to follow will deal with the following topics: No. 5 Co-ops for City Consumers. No. 6 The Co-ops Face a Challenge.

The author of this series, a newspaper and magazine writer of many years' experience, formerly was associated in an editorial capacity with one of the large general farm organizations and later with cooperative groups. Since severing these connections, 13 years ago, he has been engaged in writing on business topics.

slaughter houses to service all units of the organization.

Service Program

Curtailment of manufacture of farm machinery and motor trucks forced attention to service and maintenance programs, and here cooperative endeavor has contributed another bright chapter to the history of their accomplishments.

Stimulated by Indiana Farm Bureau Cooperative Assn. leaders, 17 county co-ops had repair shops in operation by March, 1943. Twelve others were then in process of getting started, and recently, rapid progress was made toward the

state association's ideal of a co-op repair service in every Hoosier county. In some localities commercial garages, which had closed, were taken over by the co-op, including equipment and mechanics. Studies of this repair service as performed by 10 typical Indiana co-ops showed a total income for one year of \$419,564, an average of \$41,956 per shop.

To head off large overhaul jobs, even though it meant reduction in future income, machinery repair schools were conducted to instruct farmers in care and conservation of their machines. Co-ops helped locate used machinery for sale or

The wholesale farm warehouse of Southern States Cooperative Inc. stocks a large quantity of essential farm merchandise.

By-products play an important part in the co-op distribution plan. This California by-products factory occupies 12 acres.



lease, through post cards sent to all members. One co-op sponsored a county-wide auction of used machinery and another, which had a stock of cultivators on hand, rationed them out in communities where three farmers would agree to share in their use.

In the "Show Me" state, Missouri Farmers Assn. solved the tire shortage by purchasing a tire vulcanizing shop at Lincoln, Neb. Equipment and personnel were moved to headquarters at Columbia, Mo. Southern States Cooperative, Inc., Richmond, Va., had a corps of traveling mechanics, who visited each truck terminal to make repairs and adjustments on its large motor fleet, and also to instruct new maintenance department employees.

Traffic Management

Traffic management as practiced by cooperatives is of great interest. Consider the problem of California Fruit Growers Exchange, which last year distributed 96,700 carloads of Sunkist citrus fruit from California and Arizona to cities throughout the United States and Canada, and which also ships by boat to overseas ports under varying climatic conditions throughout the year.

Like other co-op traffic departments, that of the Fruit Growers Exchange handles claims, negotiates beneficial rate adjustments, and opposes others adverse to citrus shipper interests. Water transportation is closely studied for opportunities to reduce shipping costs.

Working with the railroads, the Exchange traffic men tested a new method of loading oranges and grapefruit without strips to hold boxes in place in the reefer. After successful tests, elimination of the unnecessary dunnage was authorized, except at car doors. This change profited both shippers and receivers. Later, tests were conducted on a refrigerator car with a newly designed arrangement for ice bunkers and air vents, which, by permitting a heavier pay load, reduces transportation charges per box.

At Richmond, Va., a trained traffic manager saved Southern States Cooperative, Inc., \$29,000

Farmers Spend More For Co-op Services

Government statistics, released since publication of the first article in this series (June, 1945), show that for the 1944 fiscal year, the volume of farmer cooperative marketing and purchasing business reached over five billion dollars. This represents a gain of 36 per cent over the 1942-43 total. Farmers spent more than one billion dollars through their purchasing agencies for production supplies alone.

Membership reached an all-time high of 4,390,000, of whom 2,730,000 were patrons of marketing co-ops, and 1,660,000 were users of the purchasing agencies. Membership increased 540,000 over the preceding year, which indicates greater understanding on the part of farmers of the benefits to be derived from these non-profit service organizations. Number of cooperative associations dropped from 10,450 to 10,300 because of consolidations which stabilized the movement as a whole.

in the first 9 months after he was hired. SSC had been struggling with unreasonably high costs in the receipt of raw materials for the mixed feed mills, petroleum storage and fertilizer plants, and in the delivery of manufactured and assembled supplies.

Studying rates, the traffic expert determined the cheapest routes for moving the co-op's goods. He worked with carriers to develop economies, and found it possible to cut floating charges which the association was paying. In addition, he found ways of saving by re-consignment, diversion, out-of-line and transit privileges.

Trained Men

L. N. Conyers of the Farm Credit Assn., who reported this achievement, told of how Farmers Grain Dealers Assn., Iowa, employed trained traffic men for a survey to find the most advantageous locations, from the standpoint of economical freight rates for the erection or purchase of grain storage facilities.

Sites were selected as scientifically as chain organizations locate their grocery or drug stores on city corners. Says Mr. Conyers of the freight rate advantages thus determined, "They allow the Iowa grain dealer and grain storage operators a wide range of markets in competing for business

in certain specific sales and consuming areas."

The cooperatives have turned their attention to the possibilities for cutting costs through the adoption of mechanical handling equipment.

Tri-Valley Packing Assn., San Francisco, after installing fork trucks, reported that handling costs were reduced nearly 50 per cent, while manpower was conserved and the movement of highly perishable fresh fruits and vegetables was immeasurably speeded up.

California Walnut Growers Assn. uses fork trucks in its huge 25,000 bag warehouse at Los Angeles, where they expedite unloading and loading of 60 to 70 freight cars per day on four spur tracks.

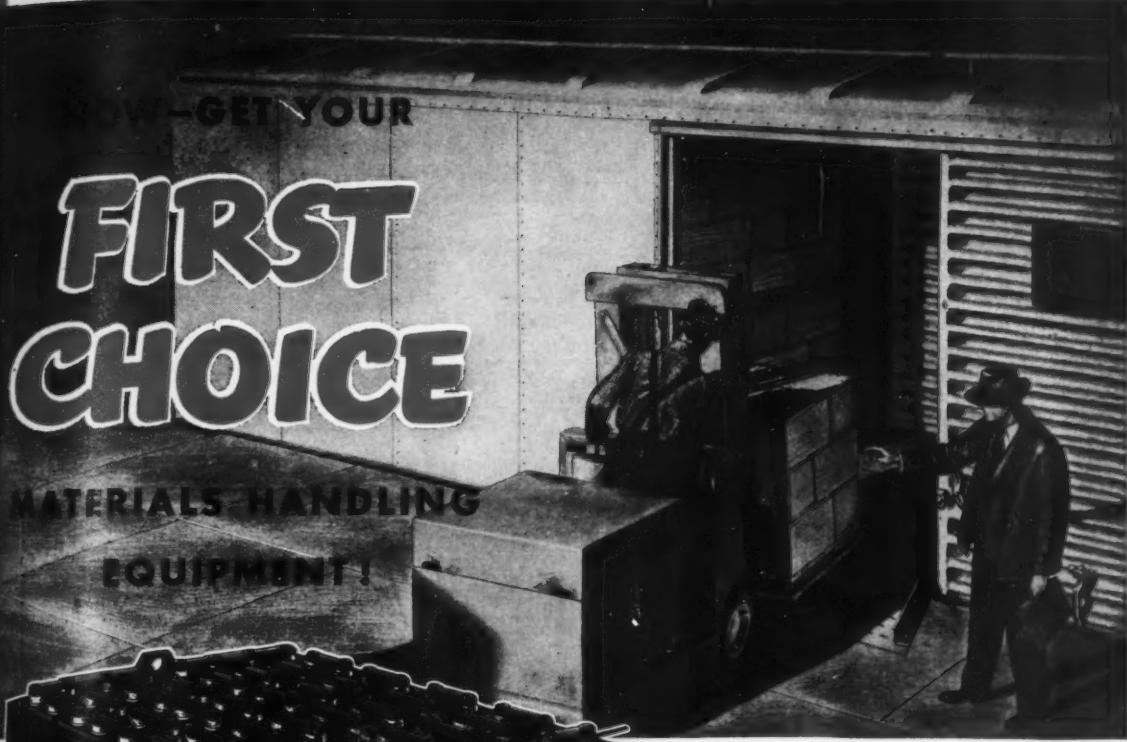
Michigan Elevator Exchange, at Lansing, invested in portable piles to stack bean bags in piles 4 to 30 ft. high. Elsewhere throughout co-op plants will be found other materials handling machines; elevators, lifters, stackers, piling and tiering equipment, fork trucks, tractor-trailers, tractor-trucks, conveyors and others helping out on the job of speeding farm commodities into distribution channels.

Large Advertisers

Debating club arguments often present advertising as one of the wasteful elements in commercial distribution, yet the fact is true that advertising budgets of many marketing co-ops compare in size with those of commercial enterprises.

California Walnut Growers Assn. has been advertising since 1918 with appropriations ranging from \$60,000 to over \$500,000 yearly. This program is designed to stimulate demand for, rather than to obtain preference for, the Diamond brand.

Results of advertising by California Fruit Growers Exchange in stimulating demand for citrus fruits were presented in Part 2 of this series. The program started in 1907 when an appropriation of "not to exceed" \$10,000 was approved by timid directors. By the end of the 1939 season, a total of \$28,596,284 had been spent for advertising.



GET YOUR
FIRST
CHOICE
MATERIALS HANDLING
EQUIPMENT!



Philco "Thirty" Industrial
Truck Storage Battery gives
30% longer life and is identified
by its distinctive red connectors.

FOR 50 YEARS A LEADER IN INDUSTRIAL STORAGE BATTERY DEVELOPMENT

Tune in *The Radio Hall of Fame*, with Paul Whiteman and His Orchestra,
Sundays, 6 P.M., EST; *The Breakfast Club* with Don McNeill, 9:45 A.M.,
EST, Monday through Friday—ABC (Blue) Network (Coast to Coast).

MODERN ELECTRIC INDUSTRIAL TRUCKS POWERED BY COST- SAVING PHILCO "THIRTY" STORAGE BATTERIES

Now you can get the kind of industrial trucks war experience proved the safest, most flexible and maintenance-free — ELECTRIC TRUCKS! And you can power your trucks with the greatest materials handling development since the fork-lift truck, itself — PHILCO "THIRTY", the Storage Battery with 30% longer life! Plan now for the big demands peace-time production will place on your materials handling equipment. Philco "Thirty" will give your trucks top capacity, plus savings in maintenance, depreciation and replacements. Write today for new catalogs giving specifications.

**PHILCO CORPORATION • STORAGE BATTERY
DIVISION • TRENTON 7, NEW JERSEY**

PHILCO

Famous for Quality
the World Over

Materials Handling in the C

By CLYDE C. ROTH

Project Manager, George A. Fuller Co.
and Merritt-Chapman & Scott Corp.

WARTIME experience in handling construction materials and supplies at advance base depots has opened the eyes of much of the building industry to the value of materials handling equipment.

A selected group of contractors were employed by the Bureau of Yards and Docks to operate advance base depots. This operation consisted of the receiving, warehousing and shipping of construction materials, supplies and equipment in huge quantities for the armed forces overseas.

During the development of these operations, the use of efficient materials handling equipment became an increasingly vital factor. It soon became evident that the customary construction way of transporting materials was inadequate and inefficient. Trucks gave way to trailers with automatic coupling, allowing rapid delivery and providing a temporary storage for immediate use.

For some types of construction materials such as lumber and pipe, the trailer was superceded by the straddle truck. The use of bolsters for storage permitted the rapid movement of this type of material with the least amount of equipment and manpower.

Fork Trucks

The use of fork trucks in the field of handling construction materials opened the door to economy. Predicated on the use of pallets, this device has entered the construction industry to stay.

Where is the contractor who will have his men laboriously wheel brick and hollow tile to scaffolds

when a fork truck can place them there more efficiently and more economically?

Where is the hollow tile manufacturer who will ship his materials in bulk in box cars, unpalletized, when palletized shipments will eliminate expensive individual handling?

Practically all building materials are manufactured and shipped in units which lend themselves admirably to palletization. Rolls of roofing paper can be palletized and banded. Glass in crates form ideal pallet cargo. Nails in kegs, paint in drums, plaster in bags, hardware in boxes; all can be palletized by the manufacturer.

To make this achievement practical and economical, fork trucks should be used at the site of the

Unit Loads Save Money

"A quantity of cement could be moved from the contractor's mill to hold of the ship at an expenditure of \$44.76 when unit loaded, as opposed to \$214.95 for the same quantity of the same commodity handled as loose cargo," Comdr. Boyd R. Lewis, USN, declared before the panel on stevedoring and cargo handling, American Merchant Marine Conference, at the Waldorf-Astoria Hotel, New York, recently. Comdr. Lewis figures were based on a navy study of material handling costs.

unloading of all manufacturers' and sub-contractors' materials.

Loose Storage

An illustration of the value of palletized shipments is provided by the example of cement received

In place of the hours formerly consumed in loading a box with cement, only 1 min. are needed to do the job when load is palletized and fork trucks are used.



The Construction Industry

Most building operations require the movement of construction materials to various points on the project. Efficiencies and economies possible through the application of materials handling principles to this movement are unlimited.

advance base depots for export shipment. Cement was purchased in bag form, as it is for use on construction projects of normal size, situated in metropolitan areas.

Box cars normally used for shipment contained 1,000 bags, stored loose. Upon arrival at the site, unloading was accomplished by comparatively slow and expensive hand labor.

Slow Method

Pallets were placed at the door of the box car, and were loaded by laborers, who placed one bag of cement at a time in an interlocking position on the pallet. The fork truck remained on the outside of the car, picked up the palletized load, and placed it in a warehouse

or on a trailer for further delivery.

This method of handling was not only slow, but it consumed vitally needed manpower, and delayed the release of critical railroad rolling stock. The time for unloading a cement car by this method varied greatly, depending upon the type and quality of common labor available. It can be stated, however, that the average time consumed in unloading a single box car, using four to six laborers, was between four and eight hours.

Cement mills were approached with the proposition of originating palletized shipments of cement. Two cement companies consented to experiment. Fork trucks were furnished for experimental purposes. Competent fork truck operators were supplied. Detailed

Four feet by four feet square pallets fit two across in a box car, and depending upon the width of the car, permit separation by means of a pallet or partition.



layouts for placing pallets in box cars and for the necessary shoring and bracing were prepared.

The pallets used for the purpose were four feet by four feet square, and six inches high. Thirty cement bags were interlocked on each pallet. No banding or strapping was deemed necessary, and experience demonstrated that this decision was sound.

Pallets of the dimensions given fit two across in a box car and depending upon the width of the car, permit separation by the use of a pallet or some less expensive partition. It was found that loading to the door of the box car might interfere with unloading operations, and since tonnage and not cubic capacity was the controlling factor, bracing at the door was found more practical. Upon arrival the bracing was removed, and the fork truck entered the box car to remove the palletized shipment.

In place of hours formerly consumed in unloading a box car of cement, a car now can be unloaded in approximately 20 min. Where previously 10 car loads of cement presented a problem, as many as 45 box cars now can be unloaded in a day under similar conditions.

No Demurrage

The release of box cars is no longer a troublesome matter, and the problem of demurrage has vanished. The present supply of common labor has become adequate through the release of laborers formerly used in cement unloading.

It should be noted that the original maximum loading remains

(Continued on page 72)

Rail Freight Questionnaire Seeks Shippers' Suggestions

THE railroads are going to their customers, the shippers and receivers, to find out what type of freight service they want in the future, F. J. Wall, chairman, traffic subcommittee, Railroad Committee for the Study of Transportation, announced recently.

This is being done, Mr. Wall explained, through a questionnaire which the members of the traffic subcommittee has sent to 18,679 large and small shippers throughout the country. The questionnaire seeks suggestions on such subjects as service and equipment, rates, minimum weights, tariffs and classifications, packing requirements, and sales and servicing. Each shipper is particularly asked to indicate his individual requirements for railroad freight service in the years ahead.

The service and equipment classification deals with carload and l.c.l. road speeds and terminal services; freight car dimensions, construction, and capacity; special materials handling devices; and coordination with line-haul rail-truck service.

Rates and Weights

Demurrage, storage, stop-offs, split deliveries, pool cars, diversion and reconsigning are some of the subjects mentioned in the section on rates, weights, tariffs and classifications.

Packing requirements of other types of carriers, as compared with those of the railroads, are discussed in another part of the questionnaire. The section on sales and services inquires about the efficiency of railroad contact, advertising, and tracing methods.

In a general category of questions, shippers are asked why and to what extent they use various types of trucks; water carriers, and pipelines. No information is solicited regarding existing or proposed air cargo tonnage.

The questionnaire concludes with

a request for comment and suggestions from shippers as to what course the railroads should follow to retain present carload and l.c.l. traffic, and to obtain additional freight business in the future.

Types of Traffic

When this information is assembled, Mr. Wall said, the railroads will be in a position to determine the different types of traffic they will be called upon to move in the coming years and the type of service required to handle this business.

This survey is part of the extensive studies being carried on by the Railroad Committee for the Study of Transportation to supplement the work being done by individual railroads in developing information for use in meeting postwar conditions.

Besides Mr. Wall, vice president, New York, New Haven and Hartford Railroad, the traffic subcommittee is composed of L. R. Capron, vice president, Chicago, Burlington & Quincy Railroad; A. F. Cleveland, vice president, Assn. of American Railroads; Russel Coulter, chief traffic officer, St. Louis-San Francisco Railway; W. S. Franklin, vice president, Pennsylvania Railroad; W. W. Hale, vice president, Southern Pacific Lines; W. McN. Knapp, vice president, Central of Georgia Railway; J. E. Tilford, vice president, Louisville & Nashville Railroad, and H. W. Von Willer, vice president, Erie Railroad. E. C. Nickerson is director of the subcommittee.

New AWI Members

Three warehouses have recently been added to the membership of Associated Warehouses, Inc., Chicago, Clyde E. Phelps, executive secretary, has announced. The new members are Central Van and Storage Co., Nashville, Duluth Terminal and Cold Storage Co., Duluth, and Davis Storage Co., New Haven.

The Traffic Manager (Continued from page 25)

war concluded, it is possible that this comparatively new type of carrier may become a real competitor of rail and highway carriers, especially in relation to manufactured articles.

The owners of canal systems were loath to believe that the steam engine could replace their facilities; the railroads were unwilling to concede that the motor truck could invade their operations; yet in each case these things came to pass and affected distribution throughout the nation. The airplane, as a carrier of freight, cannot be ignored. As the railroads expanded after the close of the War Between the States, and as the highway carriers increased after World War I, so in a similar manner the airways may now develop. This is only one of the numerous potential readjustments which must be considered by the traffic manager in his activities in the industrial sphere.

Industry needs the traffic manager. In turn, the traffic manager must possess knowledge, experience, and ability fitted to the needs of industry. For those who have the qualifications, there are unlimited opportunities. Industry needs the aid of competent traffic management to bring about greater efficiency in distribution.

Materials Handling

(Continued from page 71)

approximately the same, depending somewhat upon the pattern of loading. The entire operation is fast, efficient and economical.

The receipt of palletized cement and other palletized construction materials is merely the start of an overall program.

Most building operations require the movement of construction materials to various points on the project. Cement to a mixer, mortar and brick to a scaffold, plaster and laths to a hoist; all of these operations can be accomplished by fork trucks moving compact heavy unit loads on pallets.

A Field Warehouse Receipt Is Cash in Hand

* DESPITE the fact that public warehousing is one of our oldest institutions many persons fail to realize that a warehouse receipt is one of the most useful documents available to modern business, ranking next to actual cash or a check on a bank. Its versatility is as great as it is unappreciated.

The part that warehousing plays in the distribution and financing of this country's goods is enormous. It should be even greater and the story needs to be told and retold, particularly as we are now entering a period of economic strain in which the primary problem is one of distribution rather than production.

In evaluating the vital role which inventory financing can play in postwar distribution, it is well to realize that a public warehouse is not so much a place in which to store things as it is a legal status. Without satisfying the proper legal conditions, a place of storage is not a public warehouse but merely a storehouse; there is a vast difference between the two.

A public warehouse may be situated anywhere. It need not be located near a railroad or a dock. It need not occupy a whole building or be a building. It can be a drawer in a desk or a great tract of timberland in a forest. It is wherever a qualified public warehouseman puts his seal.

Reasons for Warehousing

When merchandise is put in a public warehouse it is, speaking broadly, for one of two reasons: the first is distribution and the second, finance. The immediate objective, however, is to obtain a public warehouseman's receipt because such a receipt is an instru-

GROWING use of inventory financing in distribution is based on the fact that it is one of the simplest and most versatile means of borrowing on a secured basis.



By STANLEY D. HART

Vice President
Douglas-Guardian Warehouse Corp.
New York, N. Y.

ment of title. While it is true that the reasons for warehousing merchandise sometimes overlap, the type of warehouse used is determined by the end result desired by the owner of the goods.

A warehouse receipt may be either negotiable or non-negotiable. Regardless of its form it is an instrument which transfers to its holder title to the merchandise called for on the face of the receipt. It does not create title but it does transfer such title as already exists. If retention of title is desired, the receipt is issued in the name of the owner of the goods.

A public warehouse receipt is a document that not only carries title, but is about the simplest mechanism by which title transfer can be effected. It requires no re-

cording or publication. The laws governing public warehouse receipts are uniform in all of the 48 states. It is, in effect, a cashier's check on a bank calling for payment in merchandise rather than money.

Warehouse Receipts

Situations in which title comes into play in business are many and varied. Examination of one of the most common cases will illustrate how warehouse receipts are most generally used.

A manufacturer of durable consumer goods — possibly washing machines, oil burners, refrigerators, or other products—divides the country into 15 or more sales districts and contracts with a distributor to represent him in each. It is essential that the distributor have immediately available a large stock covering the full line in its various colors, models, sizes and styles. For competitive price reasons, it is to the best interests of all concerned that shipments be made in carload lots.

Perhaps the distributor has not sufficient space of his own to accommodate so large a stock. In such a case, the public warehouse is the place to put the stock. More often, however, he will be able to store the shipment but perhaps his financial strength would be overtaxed by paying for the merchandise in such large lots. This is where field warehousing resolves the problem and it may be done in two principal ways. A field warehouseman may be engaged who will open a branch public warehouse right on the premises of the distributor and take custody of the goods, in which event he would issue a public warehouse receipt.

Such a receipt may be issued to the manufacturer who would then retain title and would not be a general creditor in the event of bankruptcy on the part of the distributor. The manufacturer would, at the same time, be completely protected against the hazard of peculation by the distributor. Or, and this is the more common solution of the problem, a public warehouse may be established where the merchandise stands. Instead of issuing receipts to the manufacturer, he issues them to the distributor's bank as collateral for a loan to enable the distributor to pay the manufacturer for the merchandise. Again the receipt holder is protected against all credit and fidelity hazards.

In both cases, the protection is afforded by the fact that title has been lodged with the holder of the warehouse receipt through the holding of the receipt itself. In the first case, title was retained by the manufacturer; in the second, title was transferred to the lending institution.

In general storage, public ware-

AWA Meets Feb. 20-22

The American Warehousemen's Assn. will hold its 54th annual meeting Feb. 20 to Feb. 22, at the Edgewater Beach Hotel, Chicago.

The first such meeting in two years, the 54th session will follow the plan of former meetings, with one day set aside for business of the entire association and the other two days devoted to separate meetings of the AWA's two divisions, the Merchandise Division and the National Assn. of Refrigerated Warehouses.

housing supplies "space" to accommodate merchandise.

In field warehousing, where storage *per se* is not the problem, "custody" is supplied.

Both furnish public warehouse receipts which are so versatile that a thousand different uses may be made of them.

A few years ago, the field warehousing receipt method of financing was comparatively unknown to bankers; at present, there is virtually no part of the country which does not have a bank conversant with and experienced in this type of loan. Inventory financing is therefore available to every busi-

ness that has or can obtain an inventory.

The kinds of inventory, with the possible exception of rapidly perishable goods, that can be financed through field warehousing is limitless. General acceptance of this credit facilitating mechanism has brought the discovery to thousands of business men of a new way to borrow money. Without field warehousing, it would be impossible for the coal or lumber industries to borrow on a warehouse receipt basis. Live chickens and turkeys, frozen fish, standing timber, steel, chemicals, food of all kinds, finished and unfinished merchandise and raw materials of almost every conceivable variety have been successfully field warehoused.

In the reconversion period immediately ahead, inventory financing through field warehousing will receive the serious consideration of business, especially small business. If field warehousing may be said to serve one group more than another, it is "so-called" small business which is and always has been the backbone of our national economy.

Projecting Branch Operations

(Continued from page 57)

Chicago and \$1.75 per 100 lb. via Minneapolis. To La Crosse, Wis., it is \$1.37 and \$1.59 respectively. Accordingly, it will cost 28c. more to service Fort Dodge from Minneapolis and 22c. more to La Crosse. By checking past sales and converting these figures into gross pounds, the additional shipping expense can be readily determined.

However, the distance is shorter and, hence, the delivery service is better. The point to be settled is whether or not sufficient new gross sales can be created by reason of this better customer servicing to offset the net operating loss in transportation costs. The decision is top management's.

When top management has decided on the final placement of distribution boundaries, operating personnel will be assembled in

order to provide the best servicing of customer orders, and a sales division manager will be appointed with headquarters at the branch location. Salesmen working within the division will send their orders to the distribution center to prevent overlapping of servicing both from a physical and a sales distribution standpoint.

Traffic management is immediately informed respecting estimated gross sales for the new division. These gross sales figures

Air Cargo Meeting

The Air Transport Engineering Meeting (formerly known as the Air Cargo Meeting) sponsored by the Society of Automotive Engineers will be held Dec. 3, 4 and 5 at the Edgewater Beach Hotel, Chicago, Ill.

are converted into gross pounds and it will be the responsibility of traffic management to deliver merchandise in accordance with the branch requirements as quickly as transportation operating circumstances will permit and at the most economical cost.

In discussing the practical mechanics of laying out a physical distribution system it has been necessary to mention a great many operating details in order to illustrate properly the responsibility of traffic management in modern distribution. It must be organized to present costs of physical distribution intelligently, to plan and lay out an economical and efficient system and, above all, it must be prepared to deliver merchandise in accordance with the requirements of sales demand.

People in Distribution



FINANCE

John M. Hancock, partner in Lehman Brothers, and co-author of the Baruch-Hancock Report, has been awarded the 1945 Henry Laurence Gantt Memorial Gold Medal "in recognition alike of his contribution to the formulation of national economic policy and of his incisive influence on management thought and action in demonstrating that maximum effectiveness in business and industrial organization can be achieved only through wise development of the company's manpower to performance of its full potentialities."

James Talcott, Inc., announces that S. R. Bushnell, who has specialized in industrial financing, has joined its organization thus extending their industrial finance service, particularly in the machinery and equipment field.

MARKETING

Col. Hulon Otis Warlick, Jr., has been named the new head, Shipping and Storage Branch, Department of Agriculture's Production and Marketing Administration, replacing Everett A. Levi, who served in that capacity on a temporary basis. Col. Warlick was originally on the civil engineering staff in connection with the construction of the Memphis Army Depot. He went to Washington to take charge of the Operations Branch of the Storage Division, Army Service Forces, and went from there directly to the Department of Agriculture.

Lee H. Simmons has joined the staff, industrial chemicals division, McKesson & Robbins, Inc. He was formerly with International Vitamin Division of American Home Products Corp., where he was in charge of purchasing.

John B. Macauley has been appointed director of engineering research, Ethyl Corp., to succeed Earl Bartholomew, who becomes general manager of research laboratories.

Louis E. Mesam, after three years of public relations work with the Army Service Forces, has joined the National Highway Users Conference, Washington, as public information director.

R. A. Williams, vice president in charge of sales, American Car and Foundry Co., New York, has been elected executive vice president and a director, American Car and Foundry Export Co. (Kline)

Robert O. Brannan has been advanced from sales manager to vice president, sales and purchases, Cleveland Steel Barrel Co., Cleveland (Kline)

The board of directors, Evans Products Co. has elected Edward S. Evans, Jr., president to succeed his father, the late E. S. Evans; and Prentiss Semmes, secretary and general counsel of the company, to the board.

Evidence of the importance distri-

bution is gaining in the business world is being revealed in the adoption of new titles by several companies. For example: W. F. Mulbach is director of distribution research for the Florence Stove Co. in Gardner, Mass., and Collins Schafer of Frederick Stearns & Co. Division, Sterling Drug, Inc., De-

PENICILLIN

*Largest Single Shipment ever made
to Mexico*

via BRANIFF INTERNATIONAL AIR EXPRESS

80,000 vials of penicillin were recently flown on one day, via Braniff, from the United States to Mexico. Now, penicillin shipments fill the cargo capacity of ten Braniff planes every month enroute to Mexico...another example of the "Hundred Million Dollar Market — right next door!"

Are you cultivating the Mexican markets for your product?

*All The Way
Without Delay*

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Compania Mexicana de Aviacion



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BRANIFF AIRWAYS

General Traffic Office, Love Field, Dallas 9, Texas

troit, is manager of national distribution for the concern.

Sales department, Robins Conveyors, Inc., Passaic, N. J., materials handling machinery, has been reorganized, under direction of Harold Van Thaden, first vice president. E. C. Salzman, formerly vice president in charge of sales, now is responsible for all export operations, headquarters in New York City; J. F. Meissner, vice president, transferred from Chicago to Passaic, to direct engineering sales and field engineers; A. E. Conover, formerly manager, vibrating machinery division, to director, equipment sales section; T. W. Matchett, secretary, has charge, sales research and training. Advertising and sales promotion remain under E. M. Perrin, and the engineering department continues to be headed by R. W. Eichenberger, vice president. (Kline)

TRANSPORTATION

Officials elected by the Raritan Traffic Club, New Brunswick, N. J., are: president, R. D. Dameo, owner, Dameo Transportation, Manville, N. J.; vice president, O. G. Perry, traffic manager, Philip Carey Mfg. Co., Perth Amboy, N. J.; secretary, Preston G. Van Fleet, chief clerk, traffic department, Johns-Manville Corp., Manville; treasurer, Charles W. Vosskuehler, traffic manager, Industrial Tape Corp., New Brunswick; directors, Milton Stoll, traffic manager, Smith & Solomon Trucking Co., New Brunswick; Norman G. Major, traffic manager, The Sherwin-Williams Co., Bound Brook, N. J.; Alexander Markowitz, general traffic manager, N. Y. & N. B. Auto Express Co., Inc., Highland Park, N. J.

Ernest S. Wheaton, president, announces the organization of Clipper Van Lines, Inc., with general headquarters in Indianapolis. Mr. Wheaton was formerly vice president and

general manager, Aero Mayflower Transit Co.

George W. Hover, Fidelity Van & Storage Co., Los Angeles, was elected president, United Van & Storage Assn. of Southern California, at the recent annual meeting in Los Angeles. J. Lowell McAdam, Orth Van & Storage Co., Pasadena, was named vice president; Harold Squier, Lloyd's Moving Service, Los Angeles, secretary; and O. J. Plummer, National Van Lines, Inc., re-elected treasurer. New members of the board are B. F. Redman, Redman Van & Storage Co., Santa Monica; Wesley McKay, Beverly Hills Moving & Storage Co., Beverly Hills; and Arthur Woolsey, Lyon Van & Storage Co., Pasadena. (Herr)

New officials of Houston Freight Carriers' Assn., are: A. L. Surles, R. L. Surles Motor Freight Lines, president; J. C. de la Moriniere, Hudson Transfer & Warehouse Co., treasurer; Norman H. Beard, secretary manager; Tom M. Smith, Houston Terminal Whse. & Cold Stg. Co., vice president of warehouses; K. D. Fuller, W. R. Smith Transfer Co., director of pick-up and delivery carriers, and D. J. Dalberg, Westheimer Transfer & Storage Co., vice president of package car pick-up and delivery contract carriers. S. J. Wald, Wald Transfer & Storage Co. is a director-at-large. Leroy L. Schwecke, who has been connected with the association since its organization, and a former president, has been elected an honorary life member.

WAREHOUSING

Members of the Merchandise Warehousing Industry Advisory Committee recently announced by the OPA are: Paul V. Amon, president, Atlas Terminal Stores, Boston; E. L. Becker, executive vice president, Cincinnati Merchandise Whses., Inc., Cincinnati;

R. L. Carnrike, president, Binjy O'Keefe Fireproof Storage Co., Fort Worth; Lee Kirby, Kirby Transfer and Storage Co., Pittsburgh; Robert R. Lester, president, Merchandise Warehouse, Inc., Kansas City, Mo.; A. I. Lindsey, president, Lindsey Warehouse Co., Salt Lake City, Utah; R. G. Culbertson, president, United Warehouse Co., Seattle, Wash.; E. R. Fataine, president, Commercial Terminal Whses., Inc., New Orleans, La.; Harry F. Hiller, president, San Francisco Warehouse Co., San Francisco; Clem D. Johnston, operating executive, Roanoke Public Warehouse, Roanoke, Va.; E. H. Ottman, executive vice president, National Warehouse Corp., Milwaukee; Herbert W. Verrall, vice president and treasurer, Railway Terminal & Warehouse Co., Chicago; H. E. Ward, assistant secretary, Bush Terminal Co., New York; James E. Wilson, Wilson Warehouse Co., Buffalo.

Robert A. Rockwell has been appointed traffic manager, Smith Transfer & Storage Co., Washington, D. C. Herbert E. Hodges has been appointed truck maintenance manager.

Col. Albert B. Drake, Lehigh Warehouse and Transportation Co., Inc. The Lackawanna Warehouse Co., Inc. and Lehigh Transportation Co., have been relieved from active duty as director, storage division, Army Service Forces. While in the service, he was decorated with the Legion of Merit and the Bronze Star. It is expected before returning to active business that he will take an extended vacation.

Capt. Amos E. Brooks, has been assigned to the distribution division, Third Service Command. Captain Brooks entered the Army in May, 1942, and was directly assigned to ammunition supply in ordnance. He was in the European Theater from December, 1943, to December, 1944, serving as Engineer Supply Officer.

W. G. Tanzer, sales manager, Crooks Terminal Warehouses, Chicago, has been elected president, Interlake Terminals, Inc.

Members of the 11-man Refrigerated Warehouse Industry Advisory Committee, recently appointed by the OPA, are: Vallee O. Appel, president, Fulton Market Cold Storage Co., Chicago; C. E. Ells, vice president, The Manhattan Refrigerating Co., New York; Herbert A. Gross, general manager, Booth Cold Storage Co., St. Louis; Ralph T. McKenzie, vice president, United States Cold Storage Co., Dallas; Sidney C. Rogers, vice president, G. H. Hammond Co., Chicago; Horace W. Wilson, vice president and general manager, Quaker City Cold Storage Co., Philadelphia; W. F. Henningsen, president, Northwestern Ice and Cold Storage Co., Portland, Ore.; George D. Liles, vice president, Terminals and Transportation Corp., Buffalo; Harland J. Nissen, vice president and general manager, Terminal Refrigerating Co., Los Angeles, Cal.; C. Al Martin, executive vice president, Ned and Co., Inc., Nashville; T. I. Thomas, treasurer and manager, Winchester Cold Storage Co., Inc., Winchester, Va.

Obituary

James W. O'Hara, 51, assistant vice president in charge of public relations, sales and accounts for three refrigerated warehouses: Manhattan Refrigerating Co., Union Terminal Cold Storage Co., Inc., and the Kings County Refrigerating Co. He was director, food division, New York Board of Trade, and a member of the Marketmen's Assn., Port of New York.

Joseph J. Hibbitt, traffic manager for many years for Dingfelder & Saperstone, Inc., wholesale produce merchants of New York.

Thomas H. Lawrence, 75, former manager of incoming cargo at New York for Ward Steamship Line and recently a shipping expert for the Government at the Newark, N. J., airport.

William Llewellyn, 78, retired steel company executive. He was one of five brothers who founded the Llewellyn Iron Works, of which he later became vice president, in Los Angeles. The Llewellyn enterprises, including the iron works, were merged with Consolidated Steel Corp. in 1939, William Llewellyn retiring from active business life after the merger. (Herr)

Harry A. Alford, Sr., 59, owner and operator, B. A. Transfer Co. Long a resident of Memphis, Mr. Alford moved to Durant, Miss., four years ago. (Grissam)

Arthur George Dunn, 83, retired salmon packer. A native of Cape Vincent, N. Y., Mr. Dunn served on a commission headed by former President Hoover and assisted in food conversion during the First World War. (Haskell)



Getting Down to Cases In Distribution

**FINANCE & INSURANCE • HANDLING & TRANSPORTATION
PACKING & PACKAGING • WAREHOUSING & MARKETING**

By LEO T. PARKER
Legal Consultant

TRANSPORTATION

CONGRESS, in order to eliminate every form of freight rate discrimination, provided that there shall be permitted neither an intentional nor an unintentional deviation from the predetermined schedule of rates.

In *F. Burkhardt Mfg. Co. v. Fort Worth & D. C. Ry. Co.*, 149 Fed. Rep. (2d) 909, it was shown that a shipper and a railroad agent intentionally classified merchandise for a low freight rate. After the shipper prepaid the shipment consigned to himself, the purchaser, through f.o.b. sale, paid the drafts, presented the bills of lading, and received the merchandise.

The carrier sued the purchaser to recover the difference between the legal and the lower freight rates. The higher court held the purchaser liable.

Demurrage Charges

Modern higher courts consistently hold that demurrage charges required to be filed by common carriers with state and federal agencies are founded in public policy and must be enforced in strict accordance with the schedule provisions. In other words, no deviation by contract, estoppel, or otherwise will be allowed by the courts.

In *Chesapeake & O. Ry. Co. v. Gorman*, 188 S. W. (2d) 316, Ky., it was shown that a railway company side-tracked several cars of crushed rock consigned to a contractor engaged in constructing a nearby highway.

Because of a flood, the contractor was unable to unload the rock. The contractor incurred liability under the tariff schedule for demurrage to the amount of \$367.40 in June, and to the amount of \$1,895.30 in July. The carrier sued the contractor to recover the alleged demurrage due. Although the lower court held the contractor not liable, the higher court reversed the verdict.

Government Liable

According to a late higher court decision the United States Government is liable for negligent loss of merchandise it transports as a "private carrier."

In *O. F. Nelson & Co. v. U. S.*, 149 Fed. (2d) 692, a shipper of cocoa beans sued the United States Govern-

ment for loss of beans being transported to a steamer on a navy lighter which overturned. Testimony showed that exposure to sun had opened the seams of the lighter below the full load line. The beans were being transported from the customs warehouse to the steamer.

The higher court held that the government was liable for its negligence, as a private carrier.

FINANCE and INSURANCE

CONSIDERABLE discussion has arisen from time to time over the legal question: Who is a legal insurance broker?

In *Equity Co. v. General Casualty Co.*, 139 Fed. (2d) 723, the higher court held that an insurance "broker" is one engaged in writing insurance, but who is not attached to any particular company. In other words, he procures insurance business, and then places it to the advantage of the insured and himself.

In *Transportation Guarantee Co. v. Jellins*, 156 F. (2d) 271, Cal., a higher court held that "insurance" is an agreement by which one person, for a consideration, promises to pay money to another on the destruction, death, loss, or injury of someone or something because of "specified" perils.

In this case, the higher court held that a contract, to be "insurance," and thereby to be controlled by laws affecting insurance, must "protect" a named person or company.

A company agreed, in consideration of specified monthly payments, to furnish all gasoline oil, tires and batteries and to make necessary mechanical repairs of specified motortrucks. This court held the contract insurance, saying:

"Insurance" is an agreement by which one person for a consideration promises to pay money or its equivalent, or to perform some act of value, to another on the destruction, death, loss, or injury of someone or something by specified perils."

Reorganization Plan

The law under which a bankrupt corporation may be reorganized is known as Chapter X, Bankr. Act, 11 U.S.C.A. 501. According to a new higher court decision, if a petition for reorganization of a corporation has been filed in good faith, it is im-

material whether the sale of the corporation's property has preceded, or is made a part of, the plan of reorganization.

In *Cereals v. Flynn*, 149 Fed. (2d) 711, it was shown that a creditor of a corporation desired a reorganization of this corporation. The trustee reported to the court that practically the only assets remaining in his possession consisted of cash in the bank, and he further stated that a plan of reorganization could not be formulated. The trustee recommended that proceeding under Chapter X should be dismissed, and that the original bankruptcy proceeding be pursued in order to distribute the proceeds of the corporate property. The lower court fully agreed with the trustee. However, the higher court reversed the decision, stating important law, as follows:

"In the case at bar there was no showing of lack of good faith on the part of the debtor when it filed the petition for reorganization."

PACKING and PACKAGING

AN important consideration when packaging merchandise is: Do labels comply strictly with federal laws?

In *Libby v. U. S.*, 148 Fed. (2d) 71, the United States Government condemned many cases of a product labeled "Sanford Tomato Catsup with Preservative." In this condemnation proceedings, the government acted under authority of 401, 21 U.S.C.A. 343 (g), (k), 341. This law states a "standard" for tomato catsup. It prohibits the use of sodium benzoate, a harmless preservative commonly used in other foods.

The higher court upheld condemnation because the label did not conform with the government regulations for catsup. Although the label truthfully stated: "tomato catsup with preservative," the court held that the product was misbranded, and therefore subject to condemnation.

Non-Taxable

Modern courts hold that imported merchandise in original containers is non-taxable, although held in a warehouse while awaiting disposition by a manufacturer.

In *Gardner-Richardson Co. v. Evatt*, 61 N. E. (2d) 704, Ohio, it was shown that state authorities taxed wood pulp

in original bales which were shipped from foreign countries, and stored in the importer's warehouses.

The company appealed to the higher court, and proved that the bales were "imports" in the hands of the "original" importer.

The higher court held this merchandise to be exempt from state taxation, under the provisions of clause 2, Section 10, Article 1 of the United States Constitution.

WAREHOUSING



A SELLER who mislabels stored food is not guilty of "misrepresenting" his product, if the buyer fails to read the label.

In People v. Beggs, 160 Pac. (2d) 600 Cal., it was shown that a seller

shipped and stored onions in sacks bearing labels which read: "Texas Onions 50 lb. net weight." Most of the sacks did not contain as much as 50 lb. of onions. The court refused to convict the seller of "misrepresenting" his product, saying:

"A statement made but not heard by the buyer, consequently, would not 'represent' a higher quantity than the true quantity, nor would a legend on a sack, never seen by the buyer, constitute a representation."

Seller's Lien

Generally speaking, a seller of merchandise has a legal lien to secure payment if his lien remains prior to other liens.

In U. S. v. 1,364. 76,875 Wine Gallons, More or Less, of Spirituous Liquors, 60 F. Supp. 389, a federal court held that the sale of liquor under an agreement that it should be delivered to a warehouse company,

and warehouse receipts obtained therefor, created a "lien" on the liquor in favor of the seller to the amount of unpaid purchase price. The court held that the fact that negotiable warehouse receipts were issued in the name of the buyer did not alter the law where the buyer did not endorse the receipts.

MARKETING



CONSIDERABLE discussion has arisen from time to time over the legal question. When a manufacturer purchases different and various materials used to manufacture his products, must the manufacturer pay the state's sales tax?

In Mounting & Finishing Co., Inc. v. McGoldrick, 60 N. E. (2d) 325, N. Y., it was shown that a company was engaged in the business of manufacturing products sold to national advertisers. The company purchased various materials, which it assembled.

The company contended that it should not be compelled to pay the sales tax on these materials.

The higher court refused to agree with this contention, and in holding that the company must pay the sales tax, said:

"Petitioner (company) was not buying the paper, wood, etc., 'for resale.' Nor does such a conclusion lack reasonable support in law."

LEGAL

Question Box

Warehousing

Question: Will you please tell me where I can get a book on warehouse laws? I am especially interested in the law concerning the sale of unclaimed furniture. *Coleman's Furniture, Moving and Storage House.*

Answer: I suggest that you write to West Publishing Co., St. Paul, Minn., for this information. Also, request this company to supply you with a list of law book sellers who have published books on laws pertaining to warehousemen.

You can, however, go to any law library, or any good public library, and read the law on this subject without the necessity of purchasing a book. The National Warehousemen's Assn. published a small hand book on warehouse law in 1921. However, it has not revised this book, to my knowledge.

Question: Is a warehouseman, and are the owners of stored goods entitled to recover damages from a municipality which negligently allows flood gates to get out of order? *McCullogue Co.*

Answer: According to a late higher court decision, a municipality is fully liable for damages caused stored goods through failure properly to operate flood gates and pumps in connection with a flood preventive project.

In Hale v. Kansas City, Mo., 187 S. W. (2d) 31, Mo., June, 1945, the testimony proved facts, as follows:

A company occupied a large warehouse building in which it stored merchandise. Between 1919 and 1922, the city designed and constructed a sewer project to prevent the overflow of a creek and the flooding of the vicinity thereof. The system also included all necessary laterals, connections, manholes, catch basins and other parts essential to a complete sewer system.

During a heavy rain, water backed into the warehouse building and

caused extensive damage. The company sued the municipality to recover several thousand dollars damage. The company's counsel alleged that flooding of the building was caused directly by the negligence of the city in having the flood gate closed, and the pumps not operating.

The jury considered all testimony and held the city liable for all resultant damages. The higher court approved the verdict.

Marketing

Question: If a corporation does intrastate business in a foreign state, can it sue a purchaser to recover payment for merchandise sold if it has accidentally failed to file an application for a permit to do business? *Leslie Co.*

Answer: Many state courts have held that sellers who fail to comply with "permit" laws forever forfeit their legal rights to maintain a suit in the foreign state. Other state courts have held that the seller may refile the suit after he obtains the certificate, or permit.

In Warren Co., Inc. v. Exodus, 54 N. E. (2d) 775, Ind., Aug., 1944, the validity of an Indiana state law was contested which prohibits foreign corporations from transacting business in the state without procuring a certificate from the state authorities.

A corporation failed to obtain the certificate and filed suit in Indiana against a purchaser.

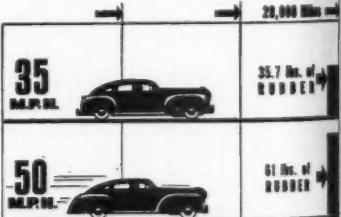
The higher court refused to allow the seller to defend the suit until he had obtained the certificate.

However, in other decisions, the higher courts have refused to permit a seller to obtain a certificate and then continue with the suit. These courts hold that sellers forfeit their rights to prosecute suits by failure to comply with the state law and to obtain a certificate before the suit is filed.

Save Your Tires

A recently in the critical tire situation by C. W. Sanderson, manager, product analysis division, The Goodyear Tire & Rubber Co., Akron, who said that common-sense driving will go a long way towards solving the acute rubber shortage.

According to Mr. Sanderson, recent tests prove that the service-life of the



average passenger tire can be stepped up considerably by conservative driving and careful stopping and starting.

Driving tests showed that the amount of synthetic rubber used up in driving a car 20,000 miles at 35 m.p.h. is 35.7 lb., as the upper half of the illustration indicates. The lower half of the chart shows that 61 lb. of rubber are used while driving the car the same number of miles at the rate of 50 m.p.h.

Car owners, said Mr. Sanderson, can drive at the moderate rate of 35 m.p.h. and save valuable tires, or they can drive 50 m.p.h. and wear out precious rubber almost twice as fast.

The One greatest aid to
FASTER MATERIAL HANDLING

GENERAL

Industrial Pneumatic

TIRE-TUBE-WHEEL UNITS

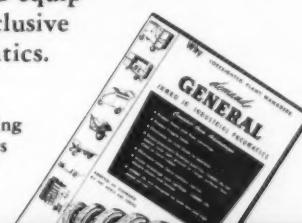
- Obtainable NOW on many types of NEW material handling equipment.
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The one engineering improvement you will see most widely adopted for postwar material handling equipment is the General Industrial Pneumatic Tire-Tube-Wheel. For, General Pneumatics have proved that they ease and speed hauling over rough, soft or smooth surfaces, reduce labor requirements, cut equipment maintenance, and stop cargo spillage and floor wear.

General's are the *original* extra-capacity wide rim tire . . . offer the *only* quick demountable wheel . . . are the *standard* chosen for Army Air Corps industrial applications. On NEW equipment . . . or to modernize OLD equipment . . . be sure you get the exclusive advantages of General Pneumatics.

COMPLETE DATA READY

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Packing and Packaging

(Continued from page 41)

ainers in storage or in shipment. He supervised all packing and crating operations. He initiated packing and packaging research. He supplied technical data on corrosion control. He was able to bring together all phases of the problem and achieve widespread improvement. Yes, packing and packaging control soon proved that it was a basic need.

Today, management may well ask itself whether a similar technician has not a place in today's streamlined, hard-hitting organizational set-up. An analysis would show that in most industries many packing and packaging operations have become scattered among sundry departments primarily concerned with entirely

different functions. Unified responsibility might well solve difficulties in distribution resulting from lack of coordination with respect to packing and packaging problems.

Those enterprises which now maintain a "packing expert" might well enquire whether it is not time to redesign packing responsibilities. Too often, this position calls for a packaging consultant, or for an adjunct to the purchasing agent, or for an out and out laboratory technician to pass judgment on the adequacy or inadequacy of packages submitted. In some companies, where packing varies with each shipment, the packing expert is a case or crate designer. He has a spe-

cific assignment to design a container to hold and protect a specific item. There is a given weight and size and he anticipates certain stresses and strains in shipment. But his work is completed with the submission of a diagram and specifications which another will follow in constructing the container.

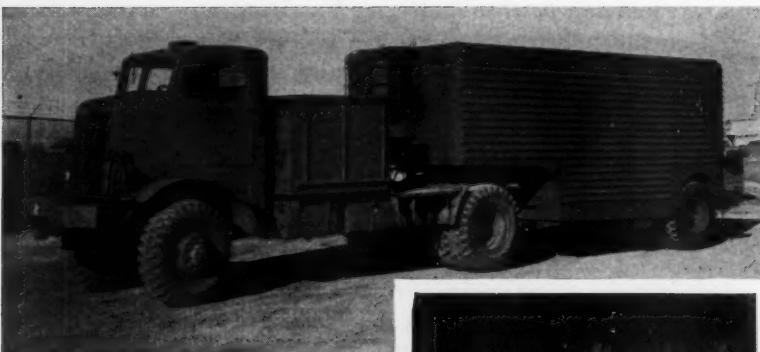
Scope of the P.C.T. In the army, it would be said the Packaging Control Technician has "staff" rather than "command" jurisdiction. Let us translate this in terms of civilian enterprise. For example, a production manager may be said to have "command" of the processing and packing department. At the same time, his department is subject to regular visits by the plant's safety engineer. The latter's function may be termed "staff" functions. He works for and in behalf of top management along some specialized line. He blankets all departments and advises and guides in the interest of achieving a greater industrial occupational safety record.

The executive who qualifies for the packaging control technician assignment (even though he may have some "command" functions) must be authorized to work with any and all departments concerned with packing, boxing or shipping, pointing out deficiencies and establishing policies and procedures. If a company is large enough to require similar technicians in subplants, branches or at agencies, then the P.C.T. at headquarters exercises technical supervision over all doing similar work in the interest of maintaining throughout the company uniform high standards of performance.

Control of packaging and packing for shipment in all of its facets, is a new and larger responsibility than "packaging engineering." In some instances, one executive may fill both assignments. In others, the packaging control executive may have technical supervision over an entire department of case designers this responsibility being only one of many others. In fact, the area of activity for each packaging control office will vary in accordance

(Continued on page 99)

Aero-Engineering a Trailer



Wide World Photos



APPLYING the principles of aeronautical engineering, Fairchild Engine and Aircraft Corp. has constructed a refrigerated trailer which weighs only 7,118 lb., but which has virtually the same cubic capacity as the 14,700 lb. standard vehicle now in use. This reduction in weight was made possible by redesigning the trailer so that every part contributed to its structural strength, and by using aluminum alloys and a lighter refrigerating unit.

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ahead!**

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It takes a tough trailer—tough in the frame—tough in the platform—tough in the casters and wheels—to handle 4 ton loads day-in, day-out without a murmur. Yet the Extra Heavy Duty Service 5th Wheel Trailer will do it, at big savings in maintenance and repair.

That's typical of all Service Trucks and Trailers—from the models to handle light loads to the ones made to carry 8 tons and more. Make hauling troubles a thing of the past—make your next order read "SERVICE."

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the delivery-day of
YOUR NEW REFRIGERATOR



The day is here when industry is getting back into the production of consumer goods on schedule. And Air Express is greatly speeding the program.

War plants now engaged in making refrigerators or autos, for example, require new tools, dies, critical machinery and parts. Via Air Express, such material is obtained in a matter of hours—delivery speed that can gain days and weeks of conversion time.

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When time means man-hours saved, production gained, a customer made—Air Express "earns its weight in gold," as thousands of firms, large and small, have learned.

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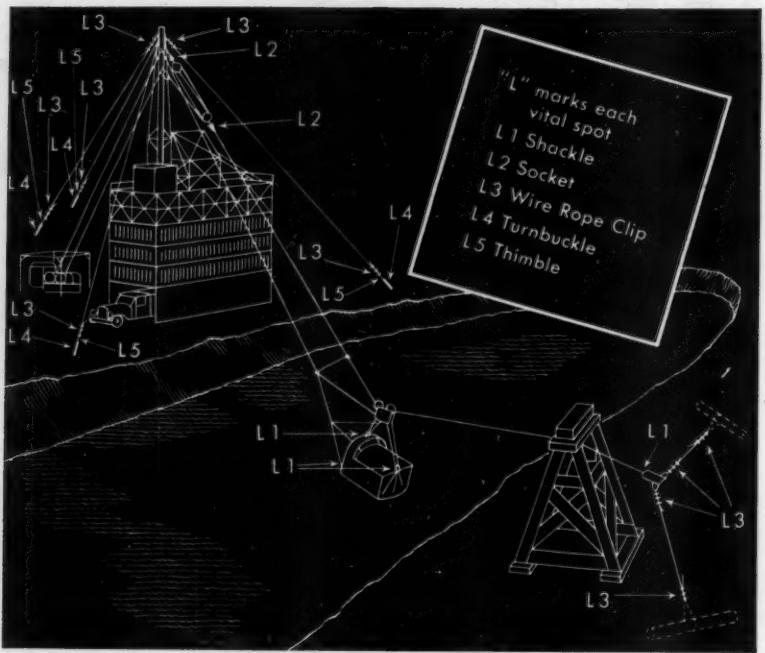


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Traffic Department

(Continued from page 29)

the Commission every time a special rate is needed. Every possible effort should be exerted first to secure the rate required by direct negotiation with the carriers. When all efforts along these lines have failed, the traffic manager should be prepared to take the case to the ICC.

Under the present bureau system of making rates, it is necessary for the traffic manager to be a pretty good politician before he can hope to have rates approved by the various rate bureaus. Submitting a rate request to one of the rate bureaus without doing considerable "missionary work" beforehand is tantamount to throwing it to the wolves. It usually will be torn to pieces even though it has been approved by the principal carrier involved. As a rule, however, the publication of a reasonable rate on which a large volume of traffic will be moved can be secured by direct negotiation with the carriers involved, and through proper procedure before the rate bureau.

Another important duty of the traffic manager is the supervision of traffic departments in his company's manufacturing branches throughout the country. While responsibility for the handling of branch traffic departments should be left largely in the hands of branch traffic managers, the general traffic manager should visit each branch at least twice a year in order to insure that systems in use at all plants are uniform.

An important part of the traffic manager's work is the purchase of all rolling equipment and supplies, including the awarding of national contracts for tires, gas, oil, etc. In many organizations this work is included under the general purchasing department, but this practice is not recommended. In many cases, experience has shown it is more satisfactory to have rolling equipment and supplies purchased by the traffic manager, who should be thoroughly familiar with all types of equipment. The traffic manager is purchasing transportation. Why

should he not also purchase trucks which are used in transportation? He should be guided in these purchases, of course, by the recommendations of the superintendent of motor transportation.

Assistant Traffic Manager. This official should be the office manager, and should employ the personnel for the general office of the traffic department. He should also interview all rail and truck line commercial agents. Valuable information is to be gained from these commercial agents. This is especially true if the official involved is not familiar with the territory. The commercial men should be the best friends of the assistant traffic manager. These men should be accorded every courtesy. They should not be required to wait for an interview longer than is absolutely necessary. The "mourners' bench" has been the cause of lost good will for many companies.

The assistant traffic manager should route all raw material from point of origin to the various manufacturing plants throughout the United States, and he should see that this material is always available when required.

This official should prepare, under the supervision of the traffic manager, necessary exhibits for use in cases before the ICC. He should be familiar with the rate structure affecting branch plants in all territories. He should be prepared to make suggestions to the traffic manager as to what rates should be requested for the various plants.

Chief Rate Clerk. This individual should calculate the average freight rate from all plants to all points served, in order that all freight may be prepaid to destination, and that products may be sold at the same price at all points in the United States. This task is both difficult and important.

The chief rate clerk should check the rates from all branch plants to surrounding territories, in order to determine which plant should serve each locality. A certain territory should be assigned to each plant based on the lowest freight rate, considering the service required.

This clerk should prepare rate

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cards for each branch. These cards should cover all products shipped and all points served from each plant. It should not be necessary to employ an experienced rate clerk at each point. If rate cards are prepared properly and are kept up to date, all that would be necessary for a rate clerk in a branch plant to do would be to check the rates against the rate cards. These cards should show both commodity rates and class rates, and should also indicate the six percent advance in rates which has been "on again and off again" for the last two or three years. The rate clerk should furnish necessary material for rate exhibits to the assistant traffic manager.

The chief rate clerk should audit all freight bills covering both inbound and outbound shipments handled by each plant. These bills should be checked first by the rate clerks in the respective branches, but should then be sent to the general office for final auditing.

Passenger Reservation Clerk
This clerk should secure reservations and purchase tickets for use by all employes of the general office. He should also prepare routes for officials and salesmen. In these times, when passenger reservations are so difficult to secure, the passenger reservation clerk is one of the busiest and most important clerks in the office.

The traffic department of a branch manufacturing plant mentioned in this article is intended for use by firms which actually manufacture their commodity from raw materials at various branches. Many firms which do not manufacture their product but which have a national distribution, do not maintain private branch warehouses. Instead, they utilize the services of reliable public warehouses which are located at key points throughout the United States. These warehouses are equipped to perform efficiently and economically the same service as a privately owned branch warehouse, and in many cases, at lower cost. The large public warehouses maintain not only storage facilities, but traffic departments as well.

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Integration of Transportation

(Continued from page 40)

These products served not be experienced. If properly all that a rate to do rates These commodities, and six percent has in" for s. The necessities to covering and shipping plant. ed first respec- when be final

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business with annual sales of \$2,500,000 or more can conduct its affairs properly without the services of a traffic manager who should be given complete control of all transportation functions. The larger the sales, the greater will be the organization of the traffic department, the greater the efficiency, and, of course, the greater the economy.

Industrial engineers may differ with this viewpoint on the basis that the business will incur additional expense by reason of creating a major department necessitating a high-salaried executive. But this, I submit, is a "penny wise and pound foolish" business principle because transportation, unlike personnel, accounting, etc., is not a negative or expense function, but rather it is a positive or money-making function. It certainly is

not an expense because a traffic manager who is worth his salt should be able to make up the expense of his department simply by checking rates on freight bills. To this extent, and as discussed hereafter, it deserves entirely different treatment.

Wholesaling

In many lines of business the nature of operations makes the employment of a traffic manager a sheer necessity. In some organizations high distribution costs are inevitable unless the functions of transportation are properly integrated and coordinated. An example is wholesale operations, where there is no production, but where the recognized major functions are buying and selling. In such cases, where one would expect to see the functions of transporta-

tion closely supervised, the reverse is true.

The character of wholesale operations is purely one of service. It is engaged in the business of collecting merchandise from various production centers which is brought to a central warehouse, and from there redistributed. The process is almost entirely one of transportation since merchandise must be transported from many points of production, handled in and out of the warehouse, which, in one sense, is another form of transportation, and then again shipped to various customers. Generally speaking, the transportation functions and authority in such a company are diffused among many people. This situation is incredible, but nevertheless a correct statement of present business conditions.

In those business organizations



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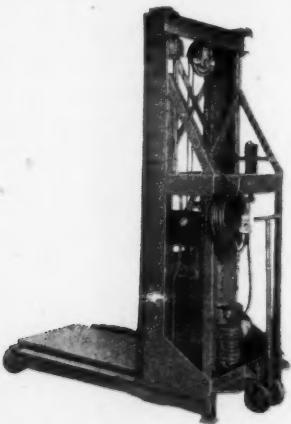
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where transportation is partially recognized and a transportation specialist engaged, his hands are usually tied by putting under his control some of the technical functions of transportation and leaving the physical functions in control of other people. Where this occurs, there seems to be a general reluctance for a complete change-over.

The reasons are many. At the top of the list should be placed the attitude of the head of the organization. Usually he has risen to his position either through the finance, production, purchasing or sales departments. The knowledge of transportation has come to him merely as a by-product and only as it immediately affected his department. The knowledge as to how it affected other departments has come to him in a sort of circuitous and incidental way. Then, too, if he realizes the lack of complete transportation integration in his organization, he hesitates to perform a clean surgical operation because there are personal limiting factors. For example, one of the officers or directors of the company is directly in charge either of the shipping, warehousing or receiving department together with his other functions connected with purchasing, sales or production. Then again, an employee in charge of shipping or warehousing or receiving has been with the company many years. Often, some companies just love divided authority. The effects on the business are not properly or fully evaluated by the average business man. He certainly must realize from time to time the cost to the business in economy, efficiency or lack of harmonious relations. In spite of this, very little usually is done.

Sales Increased \$250,000

About a year ago a manufacturing company realized the importance of transportation, engaged a specialist and placed under his control all the functions incidental to the movement of freight which include receiving, warehousing, shipping and delivering. In one year it was estimated that about \$25,000

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was saved. This, it should be understood, is a continuing, or cumulative saving, the benefits of which increase, on the principle of compound interest, from year to year. When it is considered that the sales of this company were in the neighborhood of \$5,000,000 annually, one obtains a true perspective of the accomplishment. When reduced to a sales figure on a margin of 10 percent profit, sales were virtually increased \$250,000 without incurring the expenses incidental to such sales. Nor have we considered the effect that this saving had upon the manufacturing, purchasing and selling functions of the business in the way of lower costs and increased efficiency.

Another instance of a company recognizing the necessity of integration is the H. J. Heinz Co., Pittsburgh, Pa. This company, a few months ago, placed the warehousing division of its business under the control of the general traffic manager.

As the finance executive devotes his attention to watching over the financial needs of the business from day to day; as the purchasing agent studies his sources of supply, market conditions and proper inventory; and as the sales executive concerns himself with sales, promotion campaigns, advertising and competitive conditions; so the traffic manager analyzes every phase of transportation, and how it may be coordinated with the finance, production, purchasing and sales departments, together with a study of those factors influencing the cost and sale of the product.

Lower Costs

In our next article we shall discuss some of the principal transportation functions and how they can be integrated with other functions of business to effect lower costs and general efficiency.

(Continued next month)

See Questionnaire

(Continued from page 31)

committee will hold hearings in all parts of the country. The investigation promises to be the most exhaustive study of the country's transportation problems in its history.

The so-called questionnaire is captioned: "Suggested Topics." It is broken down into nine major subjects. No. 1 concerns the national transportation policy; No. 2, regulation; No. 3, finance; No. 4, common ownership and integration; No. 5, taxation; No. 6, federal aid to transportation; No. 7, interstate barriers to commerce; No. 8, the submarginal carrier; No. 9, miscellaneous problems.

Section 4 of the questionnaire in many quarters is regarded as the milk in the coconut. Many in Washington who make comments regard common ownership and integration as the major objective

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on the part of those who have prompted the exploration. The railroads are presumed to have a major affirmative interest in this part of the enquiry.

It is pointed out that Sidney Anderson, president of the Transportation Assn. of America, has frankly and candidly been in the forefront of discussions urging the common ownership and integration of rail, highway, and air carriers, nationally, particularly for the benefit of the agricultural interests which he champions. There is frequent reference to the fact that this policy is the main plank in the platform of the Transportation Assn. of America. No one impugns his motives. He is credited with sincerity as well as good reason and a vigorous attack on the problem. It is generally held that he wishes to remedy a situation which he considered to be a mess after the first World War. The Transportation Assn. of America is credited with defraying the cost of the publication and distribution of the address made by Representative Lea on the floor of the House when he introduced the resolution authorizing the investigation.

In this talk Mr. Lea pointed out that 25 years ago the problem was mainly a railroad problem, but that today the general transportation system is composed of competing agencies of rail, highway, water, air and pipelines. He suggested the nation now must coordinate these different types with a view to the best service for the nation and with fairness to the competing services.

He enumerated 1,302 railroad corporations, 1,500,000 miles of hard-surfaced highways, used by 26,200 trucking companies and over 1,500 motor bus lines, which collectively, operate more than 5,000,000 trucks and buses. He pointed out the existence of 3,000 airports, with 35,000 miles of lighted airways, and with 3,000 more airports developing under the sponsorship of the Civil Aeronautics Authority.

He stressed that the vast network of pipelines is rapidly expanding; and that all these transportation agencies are "a potent

force in changing areas of production and distribution," and all largely developed without proper coordination, one with the other. He emphasized "we must adjust legislation and administrative control to an entirely new set of conditions." He urged that charges for services should be as low as they can be made without sacrificing sound standards.

The broadest and most general concept of the Lea transportation investigation is that neither its full import, nor its direction has yet become apparent. The thought is that the committee, notable for its high personal qualities and its experienced and trained capacities, will use its powers to do exactly what the broad chart outlined by Chairman Lea indicates. The investigation itself unquestionably will bring out the way the exploration will go, and will show the committee what the public wants, what the transportation industry needs, and what must be done to accommodate these demands to the conditions of the new postwar world.

The Weight Agreement

(Continued from page 47)

the shipper and the carrier know the actual weight that should govern on each package and each shipment.

Weight Agreement

When a shipper applies for a weight agreement arrangement, the carrier sends a representative to the shipper's place of business to make test weights of a number of packages of the product or products to be shipped. The agreement provides that the weights so ascertained shall be used in the bills of lading as issued. This practice speeds up the movement of shipments by doing away with any weighing of the goods while in the possession of the carrier. It likewise saves money for the shipper. At periodic intervals the carrier's representative calls at the shipper's establishment and re-checks. Also, if any changes are made in the packages or contents the ship-

per must notify the carrier; a further test weighing is made; and thereafter the revised weights are used in bills of lading.

An excellent description of the weight agreement method is contained in 92 ICC 643, from which we quote in part: "Under a weight agreement the carrier's agent accepts the shipper's weights, determined prior to the loading and inserted in the bills of lading, and in return the shipper agrees to keep his records accessible and in such form that a subsequent check of the weights of all such shipments can readily be made by representatives of the carrier's weighing bureau. In the event of ascertained undercharges the shipper agrees to promptly pay the same."

A small number of railroads deal directly with a shipper when arranging for a weight agreement. Even so, in the main the rail car-



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riers are members of weighing (inspection) bureaus. These, in their respective territories, represent the railroads operating in their areas in matters pertaining to the weight agreement in dealing with a shipper. This practice is not opposed by the Commission and in this connection it has said: "Railroads have generally organized weighing and inspection bureaus possessing jurisdiction over certain territorial limits" (28 ICC 7). "Supervised weights are and properly should be regarded as more dependable than unsupervised weights" (48 ICC 530).

Agreement Stamp

After a weight agreement becomes effective a shipper should use a rubber stamp which has the approval of the weighing bureau. In lieu thereof, to save time in preparing bills of lading, the shipper may have printed on his bills of lading a facsimile of the weight agreement stamp. The printing must be an actual reproduction.

Where a shipper contemplates having the weight agreement stamp imprinted on his bills of lading, the most practical, and cooperative, thing to do is first to discuss the subject with the weighing bureau and obtain its approval as well as its suggestions. This is especially advisable where a shipper is not familiar with the weight agreement procedure.

A weight agreement may apply to carload shipments or to l. c. l. shipments, or both, although at least one weighing bureau excludes the less than carload consignments.

In entering into a weight agreement a shipper must comply with its terms and he thereby assumes certain obligations. In order to define clearly these provisions we have prepared a chart as a part of this article. It is compiled from a standard form of weight agreement. The chart shows that while a shipper is not unduly committed when signing a weight agreement, he does make it possible under the arrangement to save time and labor through the elimination of unnecessary weighing of his shipments. And this, as has been stated, "provides for resultant reduction in cost of distribution."

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Demurrage Control

(Continued from page 44)

of dollars to the railroad carriers for demurrage charges.

It is interesting to note that the railroads do not in any way condone demurrage. Demurrage ties up their equipment and causes serious congestion in the movement of freight.

Another cause of demurrage is inadequate handling equipment. There are many plants in this country which in addition to insufficient siding facilities have outmoded handling equipment. How many organizations still use manual labor to unload cars of materials which could be handled by mechanical equipment in a fraction of the time? Management is guilty of this condition as well as poor siding capacity. A little foresight could prevent these obstacles to efficient operation.

The plant being considered has a platform scale in the receiving department adjacent to the siding, which weighs accurately up to 1,200 lb. But the company has no materials handling equipment other than hand trucks and skids.

The company handles approximately 1,600 carloads both inbound and outbound each year. About 26 carloads a month inbound are of steel. These cars ran between 60,000 and 80,000 lb. in weight. It takes a foreman and five men, which comprise the receiving department, a minimum of two days to unload a car, weigh it, cart it to the basement and stack it.

Interesting Situation

So here we have an interesting situation. It takes quite a number of trips to handle the 65,000 lb. of steel between the first floor and the basement. The main elevator handles a continuous stream of traffic between all floors and basement of the building. Materials in fabrication are moved from one floor to another, raw materials are removed from one floor to another and finished products are brought from various floors to the first floor where the shipping department is situated.

No wonder the demurrage for



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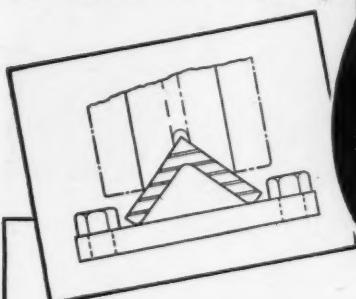
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MAKING MORE KINDS OF CASTERS
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one year amounted to \$5,000 at this plant!

The traffic manager wrote an elaborate report requesting additional siding space which required merely the tearing down of a shed and the extension of the trackage so that additional cars might have been placed. A new scale was requested; installation of an elevator of larger carrying capacity was recommended, and a mechanical fork truck was asked for which would enable merchandise to be palletized. Incidentally, the vendors of the steel, the raw materials, were agreeable to palletize their shipments so that the materials might be unloaded in a fraction of the time and labor consumed.

Demurrage Continued

These things were not forthcoming. The operating executive and directors took an "ostrich-like" position and buried their heads because of other pressing problems. Demurrage continued to pile up. The outcome was that one month demurrage amounted to \$1,900. Management received a terrific jolt and became somewhat demurrage conscious and took the old request of the traffic manager under so-called executive advisement. The traffic manager was called in and numerous discussions resulted.

Everybody in the plant took sides as to the advantages and disadvantages of mechanical equipment. The old die-hards won. It was decided that the plant was not large enough and did not have sufficient area in which to operate a piece of mechanical equipment. They could not understand that while certain additional aisle space would be lost through the use of equipment, the increased stacking height would more than offset the space lost and that the savings in labor and demurrage would more than offset the loss of space.

The problem of demurrage and handling was again side-tracked because of more pressing details which troubled the Executive Committee.

The traffic manager did the next best thing he could. He arranged with the Assn. of American Railroads for an embargo to be placed on all inbound carloads of steel

products until the accumulation of cars was cleaned up. As these cars were cleaned up, a permit system was established and it became necessary for all shippers of steel products to wire for a permit in order to ship a carload to the embargoed plant.

The traffic manager has repeatedly requested the cooperation of the purchasing department in endeavoring to get the vendors to advise the car number, the route and the point of origin of shipments which they were making. The vendor was never approached by the purchasing department and the traffic manager would come into the plant some morning and find approximately five or six carloads of material on hand without any advance notice. He would have to scout around the building to make provisions for the storage of the material as well as the unloading and the handling of the raw stock.

Ingenious Method

By means of a slightly ingenious method, he forced the purchasing department to give him the desired information. It is true that that department was by-passed, yet the information was forthcoming and the traffic manager was able to know what cars were riding and could time their arrivals as well as make the necessary arrangements for the storage of material.

It is interesting to note that as soon as this program was placed in operation, the plant had no further demurrage, and that has been over two years ago. Through this simple procedure, demurrage was licked in spite of management.

It's time for management to wake up, to look at its unwarranted donations of capital to rail carriers. Stop, Look and Listen to your traffic manager for guidance in the control of demurrage. Manufacturing costs are largely affected by the movement of raw materials, fabricating and the shipment of finished products. Traffic management can help materially to control these costs in a number of ways.

HEBARD SHOP MULE TRACTORS MOVE MATERIALS FASTER AND CHEAPER



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SHOP MULES "NEVER LOAF"

SHOP MULES never get tired . . . SHOP MULES never have "hangovers!" Drivers are proud as Peacocks . . . and a single SHOP MULE, with one driver, often saves up to eight men. Many of America's best operated warehouses use model pictured—AS VICTORY.

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in various models
and with a wide variety
of equipment for every
working condition.

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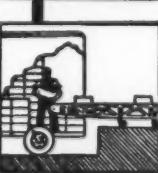


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Freight handled by Farquhar Freight Type Portable Conveyors goes faster . . . with less manhandling time and expense. In warehouse, on the shipping platform, these conveyors handle bags, boxes, cartons, crates, cases, hamper, bundles, etc., weighing up to 500 lbs. each. Five types of mounting afford quick application to a large number of situations. Write Farquhar for Bulletin No. 391 (Featherweight) and Bulletin No. 432 (Heavy Duty Freight Conveyor).



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Traffic Professionalization

(Continued from page 38)

it the details of the basic plan could be followed to a conclusion with satisfaction to all concerned. Others thought the Associated Traffic Clubs should handle it chiefly because they had been "kicking the matter around a long time." Others favored placing the plan in the hands of the Association of ICC Practitioners.

In view of the fact that admittance to practice before the ICC was made a prerequisite to becoming a Certified Traffic Manager in our plan, traffic managers were asked to specifically answer the question: "Is the present plan for admittance to practice before the ICC satisfactory?" The majority of respondents failed to comment on this point at all but of those who answered the question the greater proportion approved of the present system. Those who did not approve based their objection on the fact that attorneys at law, under certain circumstances, may be admitted to practice without written or other examination. As one traffic manager who is a registered practitioner himself put it: "A working knowledge of traffic and law are essential to practice before the Commission. Without both the practitioner is not properly qualified for handling to the best advantage the interests of his client."

Several respondents commented on the fact that our proposal seemed to provide for no written examination. In so doing they had evidently forgotten that unless an applicant was an attorney, admittance to practice before the ICC now requires passing a rather strict examination comparable to any CPA or other professional examination.

Should Be Simple

Early in September, Dr. G. Lloyd Wilson, pioneer in the field for the professionalization of traffic management, again presented his plan for a Traffic Management Institute. This plan has been before traffic men off and on for the past 15 years. Since its last appearance was just at the time that traffic

managers were replying to our pre-print and letter it was only natural that a number of them commented on both plans. Let it be clearly understood that neither Mr. Brewer and the writer nor DISTRIBUTION AGE holds a brief for any particular plan of professionalization. We do, however, feel that it should be simple. There should be but one designation either CTM or something else. Four grades of Traffic Managers as proposed by Dr. Wilson's "Institute" would complicate matters too much.

After all, one of the chief purposes of professionalization is to increase the standing of traffic managers with employers. To employers four grades or classes of traffic managers would only be confusing. A "fellow," a "member," or "associate member" or a "student member" would only raise questions in the employer's mind. It would only mean a lot of explaining by holders of the various grades. Then too, setting up an "Institute" causes a lot of overhead that will have to be paid for by someone. It also makes some wonder whether someone isn't going to "make some money out of it"; if "someone isn't trying to make a job for somebody."

While only a few respondents came out firmly against professionalization of traffic management one can not ignore the fact that many of the others at least hinted at certain things about traffic management that many of the most fervid advocates of professional status seem to ignore. Certainly traffic management is not and cannot ever be a "profession" such as medicine, law, the clergy and the like. It also seems to have only a little in common with what might be termed the "minor" professions such as engineering, architecture, accounting and others. This, as one prominent traffic executive puts it, is "primarily true because traffic management is not affected with the public interest and, therefore, it certainly does not come within the police power of the states and it has no relation to the public welfare."

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The Nutting Trucker says: "When there's a hard job to be done in a hurry,—call me. I can work around the clock,—no layoffs, no overtime—and get your work out."

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(Below)
FIG. 136 Non-Tilting Bar Handle Truck
Capacity 2500-3000 lbs.
A proven veteran for all-around service.
Precision-fabricated roller bearing wheels.
Range of sizes.

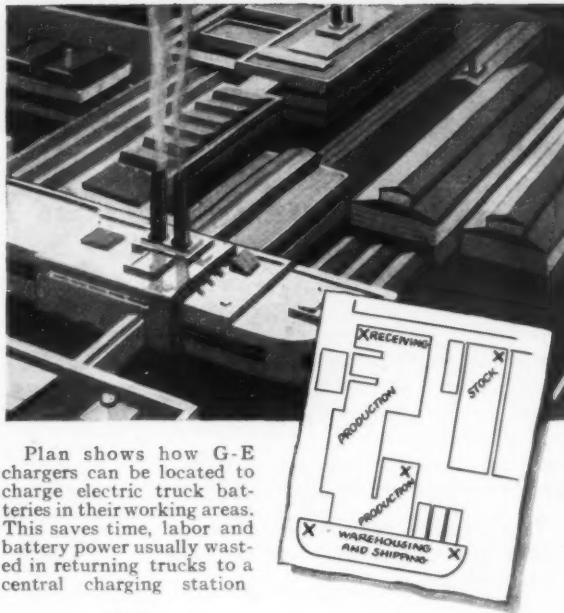


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The charger is easy and economical to use. It's fully automatic so—all a user has to do is plug in the connections, turn on the switch and the charger does everything else. It shuts off automatically on completion of the charge and a built-in control prevents batteries from discharging back through the charger after the a-c current turns off.

There are G-E Copper-oxide chargers for lead-acid batteries, nickel alkaline batteries or combination chargers to accommodate both. G-E chargers have no moving parts other than the cooling fan hence, maintenance costs compared with other types of battery charging equipment are negligible. For full details write: Section A-1156-111, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.



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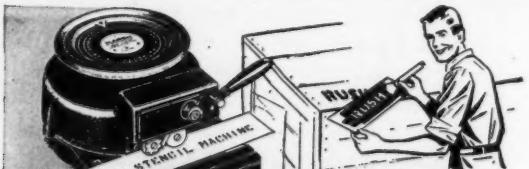
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Looking Ahead

(Continued from page 30)

ed with men and materials hundreds of thousands of miles daily to accomplish urgent missions.

Overswollen streams of commerce gave rise to so-called man tracing and so-called expediting of shipments. Throughout the country there was mass "follow-up" of shipments and this process often cost many times the normal market value of the material. Carload shipments had to be traced through junction points and frequently this was necessary each time the train stopped to drop off cars. Because everyone was in a "hurry" and for other reasons including inexperienced manpower, carloads which were "protected" for through expeditious movement of urgently required material could be delayed or "lost" for days unless followed through by telephone.

New Problems

But now that the war crisis is over, traffic department thought and energy should be expended on devising right routes and better materials handling, rather than to attempt to correct exceptions which result from inefficient distribution. The elimination of thousands of traffic department positions with the consequent freeing of the energy of these thousands does not imply the necessity for reduced energy within the nation's industrial traffic group. Rather the reverse is true.

Freight rates present tremendous problems for all industries. As a result of the recent class rate decision, plants of some industries will be moved and present channels of distribution changed. However, the effect of this class rate decision, or of the "interim" changes are not too vitally important to distribution plans. This is true also of legislation now being considered at Washington. What is for the public good is to industries' advantage.

The traffic department has the sober duty of weighing the effect pending legislation will have on its industry. It will then be in a position to join not only with other dis-

tribution experts but with the country's men of affairs in moulding public opinion. This will take the form of organized effort in education.

For example, what has the traffic manager concluded concerning the best way to handle the intricacies of transportation, a vital part of distribution? Can it be done best by a group of experts responsible to Congress or by the representatives of the people themselves? Does he feel Congress has the time and ability to enter into a detailed examination on the complexities of freight rates? If he has concluded that they should be handled by a quasi-judicial body such as the Interstate Commerce Commission, to whom does he feel this group should be responsible, the executive branch of the government or the legislative?

Lea Questionnaire

The Hon. Clarence F. Lea, chairman, House Committee on Interstate and Foreign Commerce, recently filed a resolution authorizing an investigation of the nation's transportation situation with a view to recommending legislation that will result in a consistent public policy, fair to all competing agencies of transport, to the using and investing public and to labor, to the end that the country's commerce may be moved with the greatest degree of economy, safety and dispatch. The Committee has distributed a list of suggested topics "for consideration and discussion by all companies, associations, rail brotherhoods, state and federal boards and commissions and individuals who have or may be assumed to have an interest in or knowledge of transportation and its postwar problems."

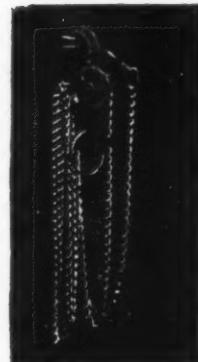
The traffic man should have reached or be in the process of reaching conclusions as to the views he intends to take in connection with this national transportation inquiry. If he intends to submit answers to Chairman Lea's questionnaire rather than wait to see what form of legislation will be proposed, what questions does he feel he can answer with some degree of authority? For example,



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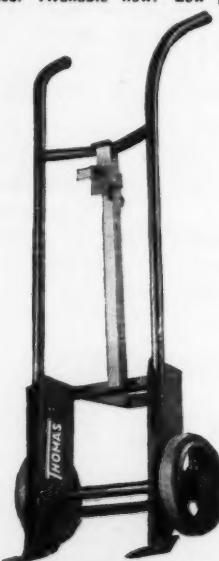
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Chairman Lea has asked "to what extent has the federal government the legal authority to do business today to remove state barriers to the free flow of commerce apart from considerations of safety?"

While it might come to the traffic manager's mind that he thinks such authority extends from the Constitution in the part which grants Congress authority to regulate commerce between the states and Indian tribes, he has no business in attempting to reach any conclusions on such a question. Obviously this question could only be properly answered by an attorney specializing in constitutional law.

Rate Making

What conclusions has the industrial traffic man drawn with respect to the presently established and heretofore generally accepted method of rate making? So-called associations, established for the interchange of thought among the carriers, are now being challenged. Does he feel the public interest is being sacrificed by these associations? A recent book entitled "Justice in Transportation" has been written by Arne C. Wiprud, special assistant to the Attorney General in the Anti-Trust Division of the Department of Justice. The book has been described as an exposé of monopoly control. It carries a foreword by Judge Thurman Arnold. Mr. Wiprud states in the volume that he was persuaded to write the book by Judge Arnold, and also gives credit to the present Assistant Attorney General, Wendell Berge.

In July, 1942, the Attorney General of the United States, Francis Biddle, authorized investigation of American transportation. Mr. Wiprud's book undertakes as its thesis the alleged abuses and evil consequences of monopolistic practices and controls in the transportation field. We are given to understand that these practices and controls have produced high and discriminatory rates and have resulted in restricted services and suppressed technological improvements which have retarded the nation's economic development. Does the industrial traffic man feel that his straight thinking for the public and, there-

fore, his company's good is being anaesthetized by a philosophy justifying the elimination of new enterprise in transportation that stabilizes and protection of the earning power of \$26,000,000,000 of railway capitalization may be selfishly protected? To what extent, if any, does he feel that the intention of Congress with respect to the protection of the public, and his company as a purveyor of shipping, has been replaced by control rather than by competition? Does he feel that air, water, and truck competition have been suppressed and to the nation's detriment?

Conclusions reached on the manifold transportation problems which effect distribution are useless if they do not affect the well-being of the industry the traffic department is representing.

More Locker Plants

An increase of 1,182 frozen food locker plants in the United States in the period from July, 1944, to July, 1945, was reported recently by the U. S. Department of Agriculture.

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Lake Wales, Fla., needs at once storage and moving business to cover the Ridge Section of Central Florida. Write to:

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Experienced warehouse administrative executive, knowledge of cold dry storage; marine operations. Good qualifications, references. Available first of year.

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Packing Control

(Continued from page 80)

with the particular need of each enterprise. The more general duties, however, should tend to be similar wherever the idea is adopted as we shall describe. While expressed wherever possible in terms of civilian industrial enterprise, it is well to bear in mind that each of the packaging or packing control functions outlined here has been tested under pressure of war conditions and belongs within the over-all scope of such a technician's direction.

Detection of Unsatisfactory Packing or Crating. The Packaging Control Technician is a case detective looking for remote causes. He does not accept blindly a statement from a receiver 2,000 miles away that a carrier was responsible for container failure or damaged goods. It might ultimately prove to be a carrier's negligence, but if so, the P.C.T. must produce such overwhelming evidence as to adequacy of pack, preparation for shipment and final inspection records as to make the claim against the carrier iron-clad. He cannot, however, fall back on presumption of improper handling by a carrier until he had first satisfied himself that breakage was not a result of some other cause. In all situations he will make or institute a complete investigation. He will ask among other questions:

Were interior packaging specifications adequate?

Were packaging procedures capably supervised?

Was interior blocking adequate to resist stress from every possible direction?

Did interior bracing or cushioning tend to permit a play, causing abrasion and eventual weakening of outer container while in transit?

Was outer container constructed sufficiently heavy and of proper materials to stand up under all conditions to be expected?

Was outer container properly engineered and tested?

Was there proper nailing, sealing or other closure?

Was there any temporary variation in quality of materials used in container?

If case strapping was specified, was it of proper size, properly applied and correct number of bands used?

Was there any possibility of abusive handling before acceptance by the

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SOLVAY PARA-DICHLOROBENZENE

Para-dichlorobenzene, properly used, is recommended by the U. S. Dept. of Agriculture as an actual moth killer.

Kills moth larvae and also deodorizes as it prevents moth damage.

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PLATFORM and
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Write for details and prices.



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Fig. 293-4
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1 WIZO RAT GLUE BOARDS. The new method of exterminating rats. Holds them firmly. Rats can be disposed of quickly and simply. Eliminates decomposition.

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WIZO WAYS for a 100% Kill!

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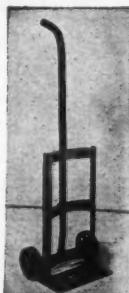


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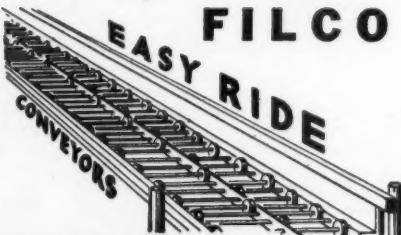
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carrier which might have created non-visible structural weaknesses?

Were proper methods used in stowing on truck and railroad car?

Was the shoring and bracing of the load, if required, adequate?

He can afford to be nothing less than thorough. More than the value of a single shipment that failed is at stake. There is the possibility that if something that can be corrected is at fault, many other shipments may meet similar fate. There is the further possibility that other shipments unreported did fail similarly, which,

in business destroys dealer or consumer confidence.

Remedial Action. Once reaching his answer, the P.C.T. proves he is more than a detective. He is also a "case doctor," a packing room efficiency expert, the box factory's mentor. He points out danger signals in methods of handling, warehousing and shipping. He not only locates every threat to the company's packing reputation but comes up with the cure.

Where basic changes in boxing styles or packing room procedures

are advisable, he, in effect, carries the ball and overcomes indifference. On special packs and unusual orders, he is consulted before any necessary varying is done to the standard packaging and boxing.

Packaging Research. Indeed the P.C.T. does not await reports of case failure before he concerns himself with corrective packaging and crating. He has made a point of keeping abreast of latest technical knowledge, development and findings in all phases of protective packaging and preparation for shipment. He maintains a complete reference file of technical manuals, specifications, diagrams and other source material. He investigates and tests the latest in packing supplies and equipment. He is as familiar with production line machinery as he is with a case-marking pen to aid the stenciller in the shipping department.

The P.C.T. is not at the mercy of every manufacturer of shipping containers and other packing materials who ostensibly has a "service" to offer, but who actually has an axe to grind in behalf of his own product. This is no reflection on these so-called "services" as many have rendered excellent assistance, especially to small packers and products, unable to support their own packaging control research. The packaging control technician, however, through constant research, is familiar with pros and cons of all packaging methods and materials, types and styles of containers, and is in a position to accept or reject, as he sees fit, the biased recommendations of the "free packaging consultants."

There is no field that can benefit more directly than packaging from technical advances being made with wood and paper products, metal containers, plastic, glass, metal and synthetic foil preservative compounds and dehydrating agents. The P.C.T. is prepared to recommend and initiate action as fast as technical advances are made which his industry can adopt profitably.

Freight Inspection — Outgoing. It is wisely said the P.C.T.'s circle of activity begins and ends with

freight inspection. For it is the condition of freight in storage, at points of distribution and upon arrival for final use, that largely determines need for better packing or indicates economies which can be effected. It is results of inspection which say, "waterproofing is insufficient," "labeling is inadequate," "at this point we must prevent corrosion," or "here we must control vermin infestation."

A manufacturer can be very proud of his final shipping case, neatly aligned on pallets in the stockroom. Will he be just as proud after a trip of some 2,000 miles plus the usual handling at points of transshipment? Freight inspection furnishes the eyes to see one's cargo at every point in the chain of distribution. It must be complete or trouble is invited.

In next month's concluding article on packing and packaging control, methods, procedures, and short cuts in freight inspection, together with other packaging control technician's responsibilities will be discussed.

Air Cargo Ejector

A conveyor belt to unload cargo from airplanes in flight has been developed by the United States Rubber Co. in cooperation with aviation engineers. Designed to aid army airmen in parachuting supplies to the ground, the belt ejects the entire cargo of a plane in less than seven seconds. All packages land close together in a small area. Engineers are studying the idea of adapting the belt to commercial planes for discharging mail and other cargo by parachute.

Cotton Markets

The National Cotton Council has developed a program calling for the expenditure of \$1,500,000 annually to expand and maintain cotton markets throughout the world, W. Rhea Blake, executive vice president, revealed at a recent meeting at Phoenix, Ariz. (Herr)

Surplus Storage

The Buffalo plant of Bell Aircraft Corp. will be converted into a government warehouse for the storage of war surpluses, it was announced recently. (Toles)

Federal Regulation of Highway Carriers

(Continued from page 32)

generally, but should there be one, the extension of areas within which trucks might perform purely local service from interstate regulation might well be considered. Do the carriers wish for the return of free competition? If all competitive and other conditions prior to 1887, the beginning of interstate railroad regulation, were to be restored by the elimination of regulation, it is probable that the railroads would prefer to continue under regulation. It has not always been kind to them. Successive amendments to the first legislation has bound them tighter and tighter, and placed considerable burdens upon them. They would like to have some ties cut or loosened. They complain that the Commission has encroached at times too far into the field of managerial discretion, and that it has been niggardly in authorizing increases in rates, cumbersome in gathering facts and too slow in reaching conclusions. But nevertheless it is probable that the benefits to the railroads in the long run outweigh the defects of existing regulation.

Before regulation the pressure of large shippers for low rates, or special concessions, was too strong for the railroads. The act to regulate commerce prohibited unduly preferential rates, and the Elkins Act made rebating a criminal offense. Rules requiring publicity of all freight rates, and a definite procedure for making them effective wiped out the evil practices which made the railroads a prey to unscrupulous shippers. The power of the Commission to fix minimum rates was a bar to cut-throat competition from other railroads.

When motor trucks began to bite into railroad revenues to a painful degree, it was natural that the railroads should insist that trucks engaged in carrier-service should also be regulated. They were joined by the larger trucking companies, and by many shippers. The Motor Carrier Act of 1935 resulted. Up to

that time it was relatively easy to get into the motor-hauling business, and irresponsible or fly-by-night operators, here today and gone tomorrow, furnished competition which was hard for the railroads to meet, and the tonnage attracted to such motor haulers became a drain that the railroads found difficult to stop.

Against New Carriers

But now that regulation controls interstate transportation by truck, the motor carriers and the railroads are a unit in opposing entrance of new carriers into fields that are occupied by certified operators. The railroads now wish to become carriers by highway and air. They recognize that motor carriers and airplanes can give a faster and more flexible service and can perform service which they cannot. It is argued that services of such carriers should not be isolated from or competitive with rail service, but should be complementary. Each type, it is said, should be permitted to operate in the fields of other types. And that means, as a practical matter, that the railroads would operate planes, trucks and buses as extensions of rail lines.

There is a strong movement in rail and shipper circles which would remove the bars which now exist against railroad control and operation of other types of transportation. To preserve competition railroads would be required to secure approval from the Commission of the acquisition of other carriers or types of carriers. Complete acquisition of all carriers of any type in any region by any single railroad would not be permitted. Only carriers who furnish added or complementary service would be required. The next step would be to create large systems of railroads and complementary carriers in such a manner that great systems of such carriers would be competitive.

(Concluded next month)

Public Warehouse Section

Warehousing is an integral part of distribution in several ways. Public warehouses are not merely depositories for the safeguarding of personal effects or industrial commodities; many are equipped to perform a wide range of services in addition to storage. Among these services are:

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